

TABULKY

K PRVÉ A DRUHÉ ČÁSTI

MECHANICKÉ TECHNOLOGIE

PROFESORA INŽ. FRANTIŠKA HASY.



V PRAZE.

NÁKLADEM ČESKÉ MATICE TECHNICKÉ S PODPOROU MINISTERSTVA ŠKOLSTVÍ A NÁRODNÍ OSVĚTY,
V KOMISI KNIHKUPECTVÍ FRANT. ŘIVNÁČE V PRAZE,

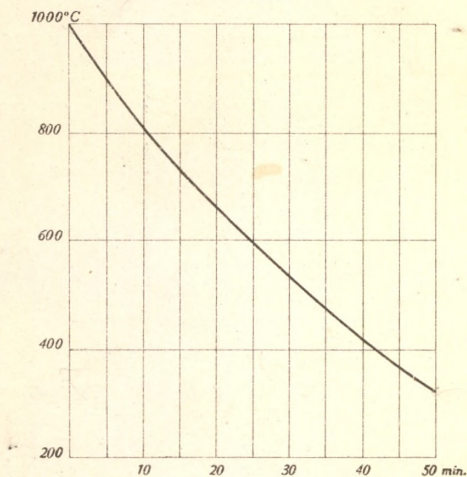
1923.

КНИЖОВНА КОМПЕТІТІ
про унікальні збірки рукописів
зібрані в ч. 3. 2.

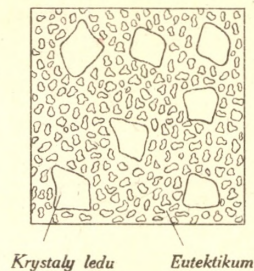
TISKEM GRAFICKÝCH UMĚLECKÝCH ZÁVODŮ V. NEUBERT A SYNOVÉ NA SMÍCHOVĚ.

Průběhy chladnutí.

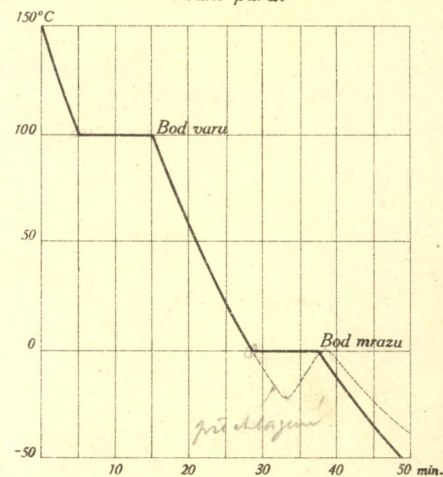
I.
Platina.



V.

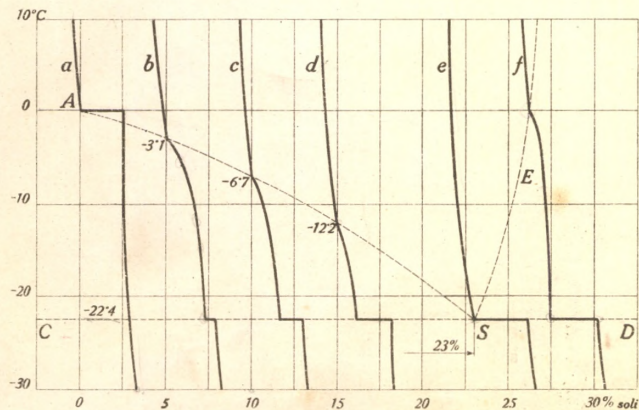


II.
Vodní pára.

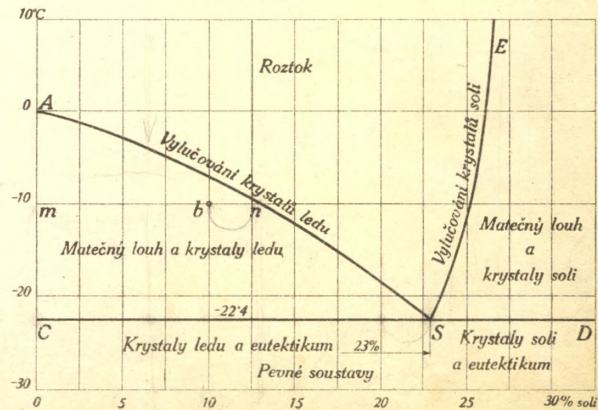


III.

Roztok kuchyňské soli.



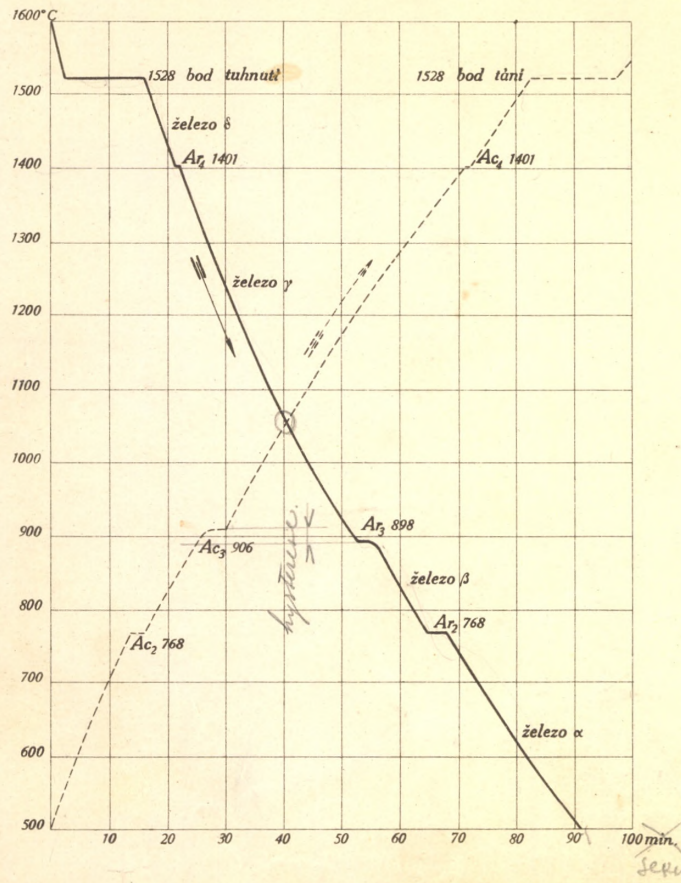
IV.



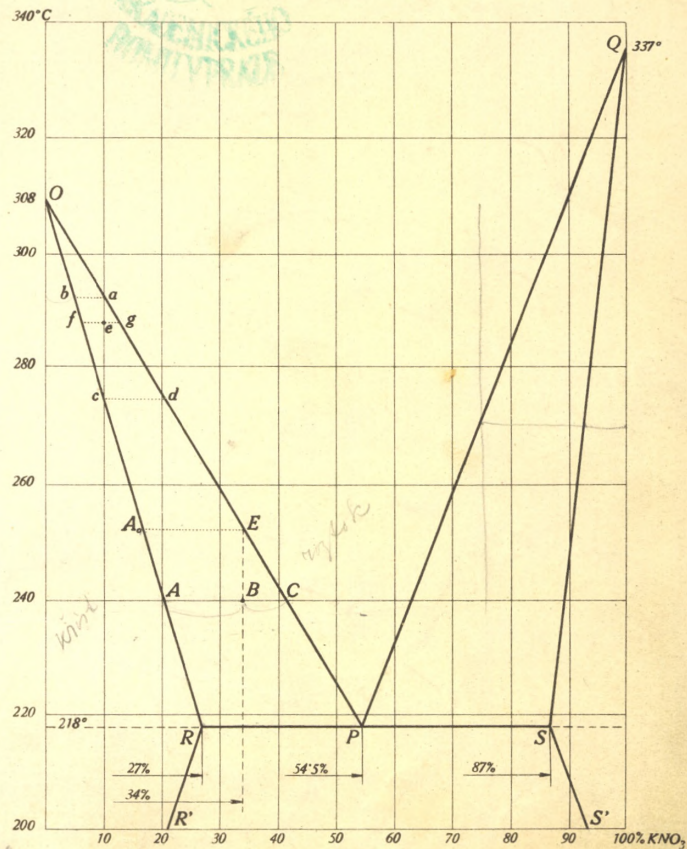
Průběhy chlazení.

I.

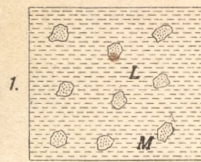
Chemicky čisté železo.



II.

Slitina dusičnanu draselného a sodného $[KNO_3 + NaNO_3]$.

IV.
Bílě surové železo.



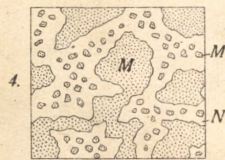
Pod BCD



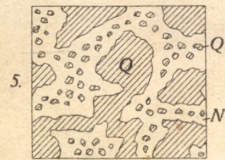
Těsně nad 1145°



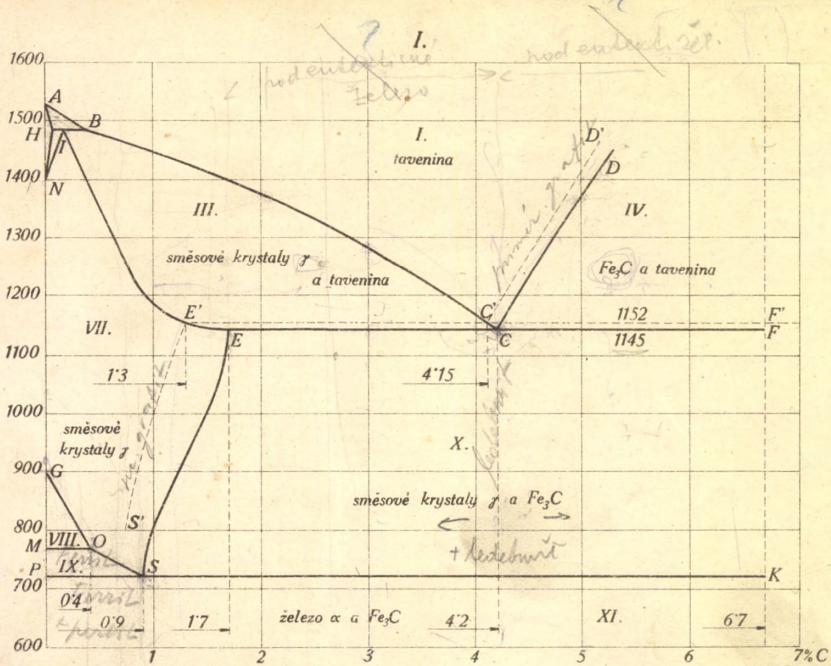
Těsně pod 1145°



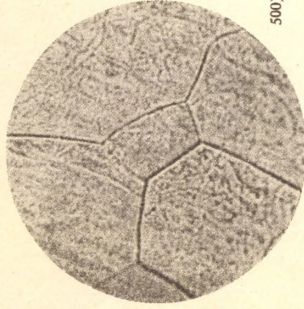
Těsně nad 721°



Těsně pod 721°

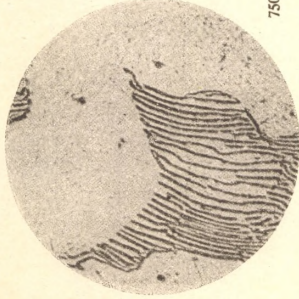


Strukturní součásti uhlíkového železa.



500×

Obr. I. Ferrit. Mnohoúhelníkové obrazy, vzniklé leptáním, odpovídají hranicím mezi jednotlivými zrnny.



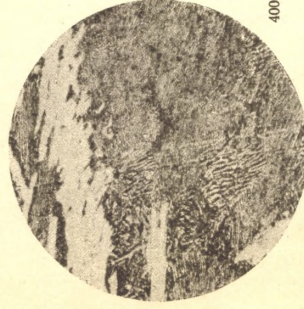
750×

Obr. II. Podutektooidická ocel. Ferrit (světlý) a pískový perlit.



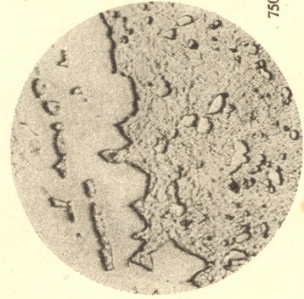
750×

Obr. III. Entektooidická ocel s 0.99% C. Pískový perlit z písků ferritu a cementitu.



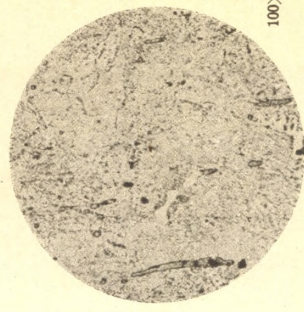
400×

Obr. IV. Nadeutektooidická ocel. Cementit (bílý) a perlit (pískový).



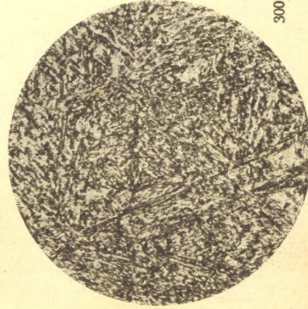
750×

Obr. V. Zrnitý perlit (hladké plošky cementitu ve zdraném ferritu) a volný cementit (velká hladká plocha).



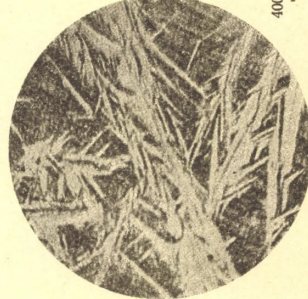
100×

Obr. VI. Sorbit (šedá plocha), ferrit (světlá místa) a zrnka strusky (černé plošky).



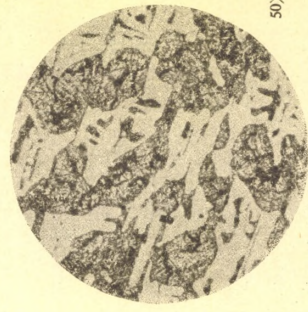
300×

Obr. VII. Ocel s 0.5% C zakalená při 950° ve vodě. Martensit.



400×

Obr. VIII. Zakalená ocel. Austenit (tmavá základní plocha) a martensit (světlejší jehličky).

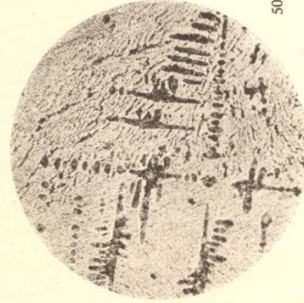


50×

Obr. IX. Sur. železo s 3.6% C, zakalené. Cementit (bílá pole), troštit (černé plošky) a směs austenitu s martensitem (šedé plochy).

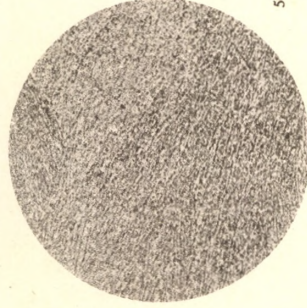
Všechny výbrusy leptány kyselinou pikrovou.

Strukturní součásti uhlíkového železa.



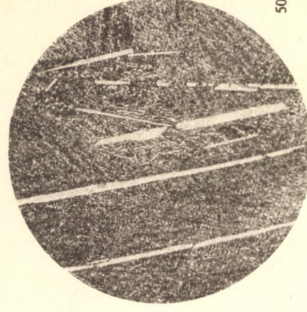
50×

Obr. I. Podutektické sur. železo s 39% C. Soudržný železo a cementit (tmavé smíšené krystaly (tmavá místa podoby jehliček) a ledoburit (žlutá hmoty)).



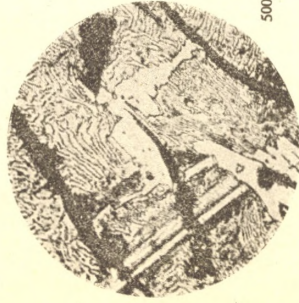
50×

Obr. II. Eutektické sur. železo se 42% C. Soudržný železo a cementit (tmavé smíšené krystaly (tmavá místa podoby jehliček) a ledoburit (žlutá hmoty)).



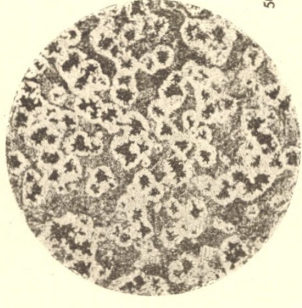
50×

Obr. III. Nadutektické sur. železo se 47% C. Soudržný železo a cementit (tmavá místa podoby jehliček) a ledoburit (žlutá hmoty)).



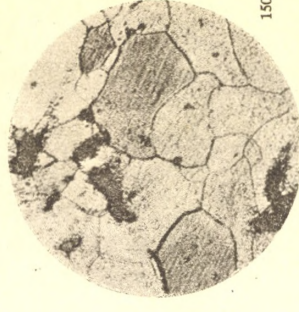
500×

Obr. IV. Šedé sur. železo, Grafit (černé žíly), páskový perlit a světlá součást. Ta je cementitem, neboť se ji netkla ocelová jehla, již na výbrusu provedena ryska.



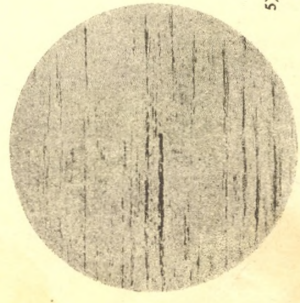
50×

Obr. V. Bílé sur. železo se 42% C, žitné 50 hodin při 980°. Uhlík zrnčkový (černý), ferrit (bílý, obklopující hnízdá uhlíku) a perlit (šedá plocha).



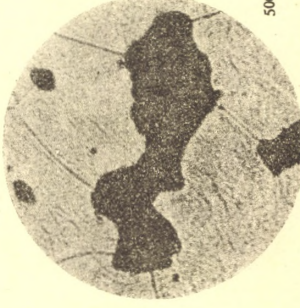
150×

Obr. VI. Kujná litina se zbytky zrnčkového uhlíku (černá místa), zbytek ferritu.



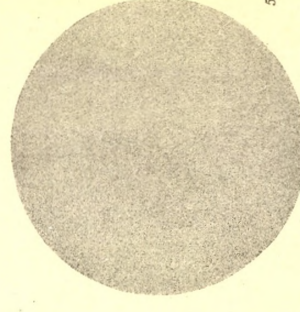
5×

Obr. VII. Svařkové kuj. železo, nepleťané. Výbrus ve směru válčení. Struskové žíly (černé) a ferrit.



500×

Obr. VIII. Svařkové kujné železo. Výbrus kolmo ke směru válčení; zvětšení 100krát. Žíly struskové (černé) a ferrit (světlá plocha).

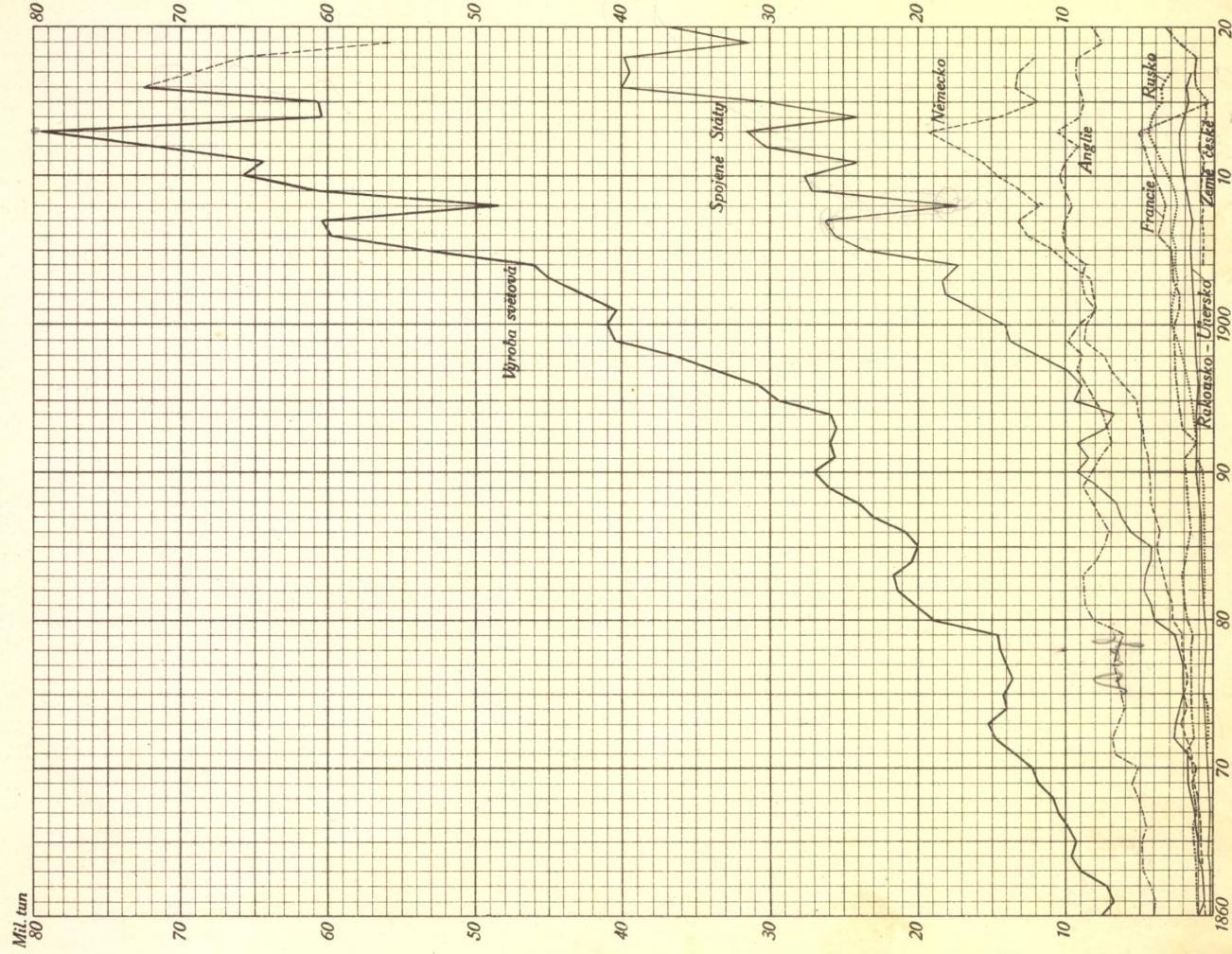


5×

Obr. IX. Plávkové kuj. železo, nepleťané. Výbrus ve směru válčení, prostý strusky.

Tabulka 6.

Světová výroba surového železa.



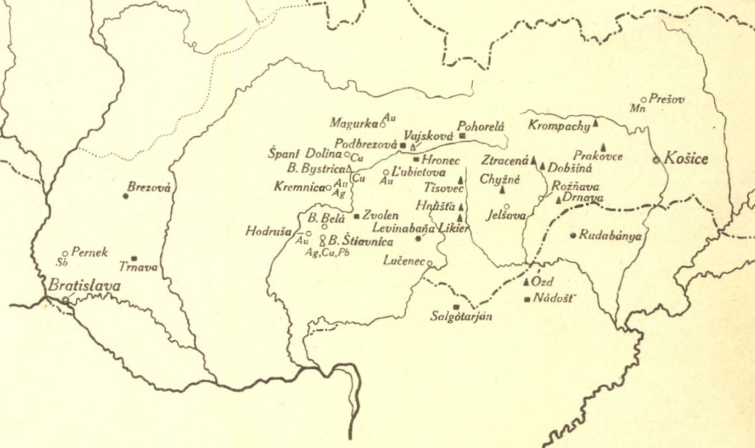
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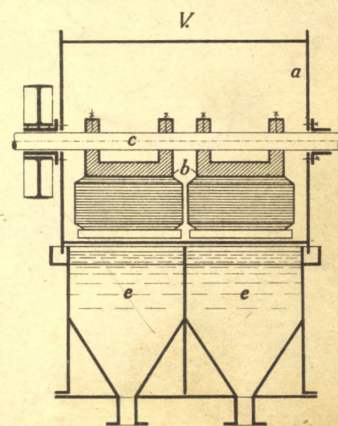
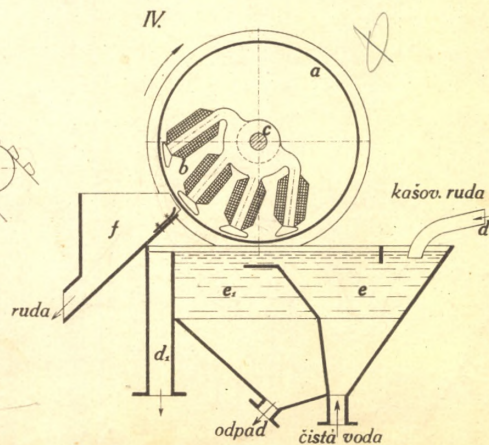
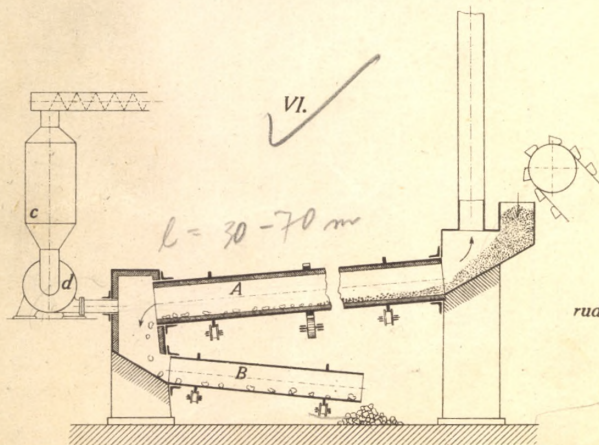
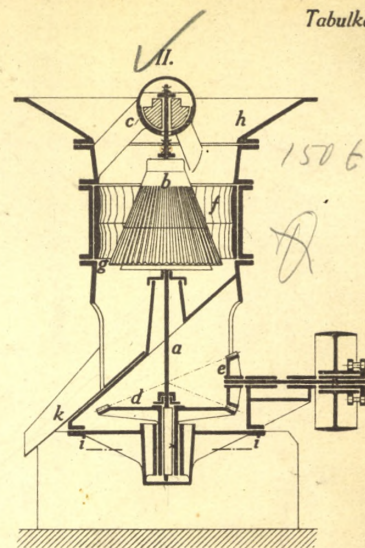
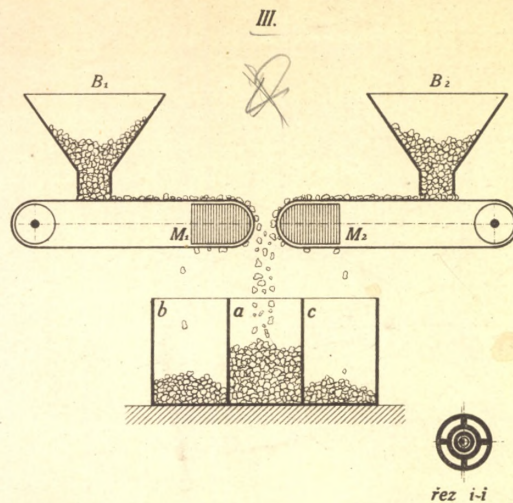
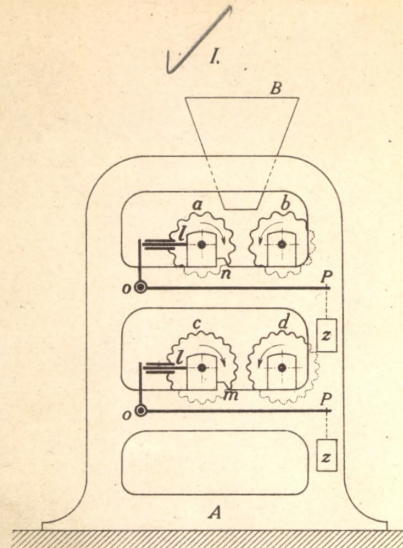
II.



III.

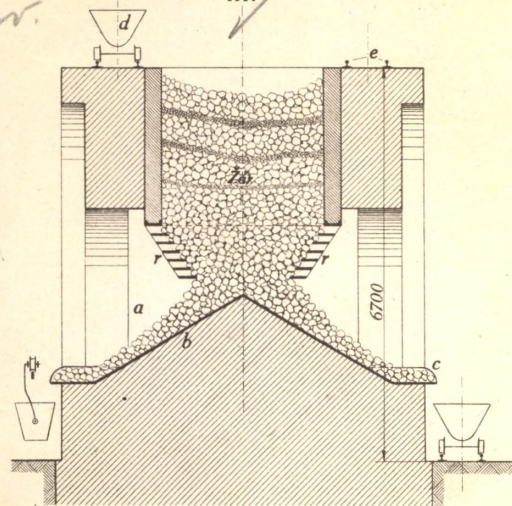


Doly : na železnou rudu • Huti : na železo ▲
na jiné kovy ○ na jiné kovy △ Železářny ■



Donat.

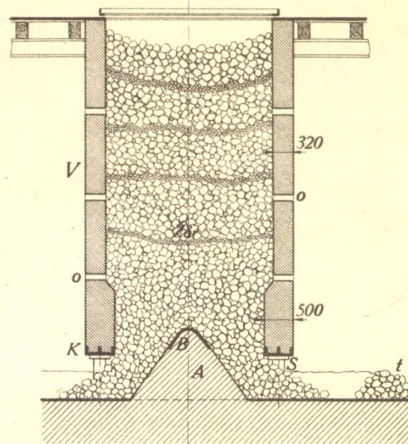
III.



Prāia fee

I.

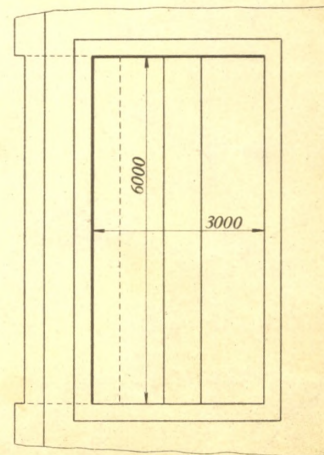
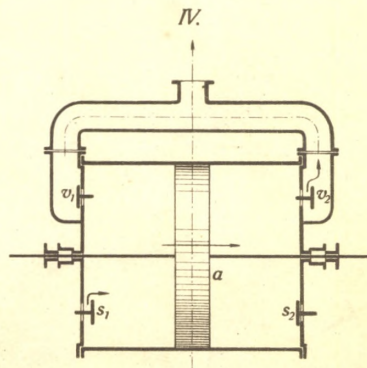
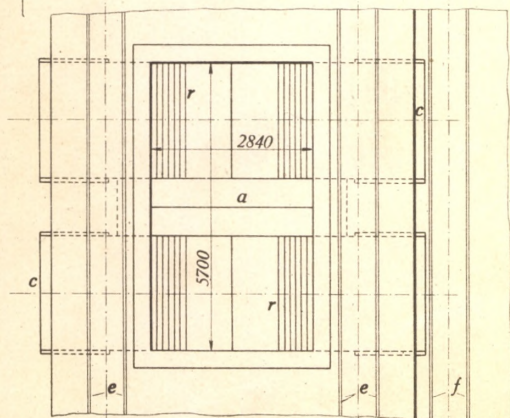
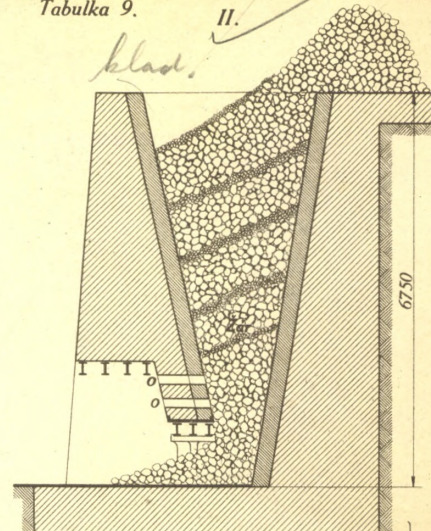
Nácia

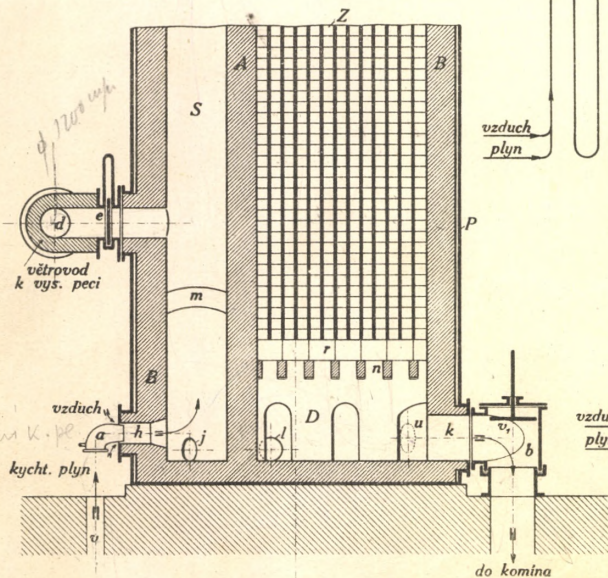
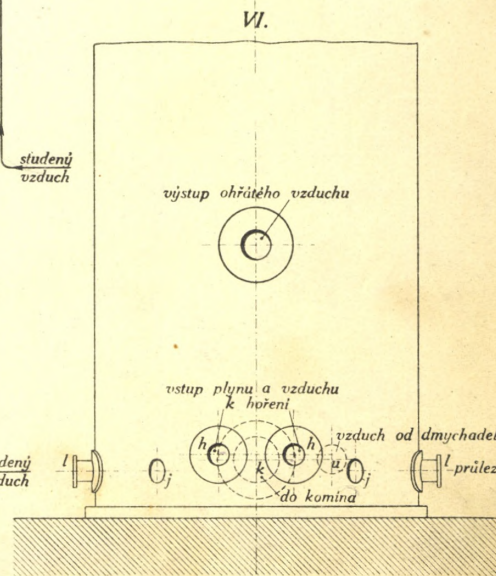
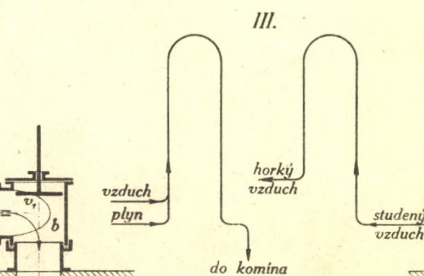
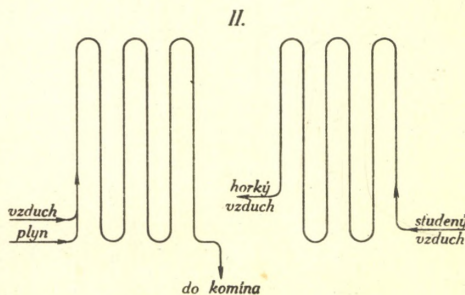
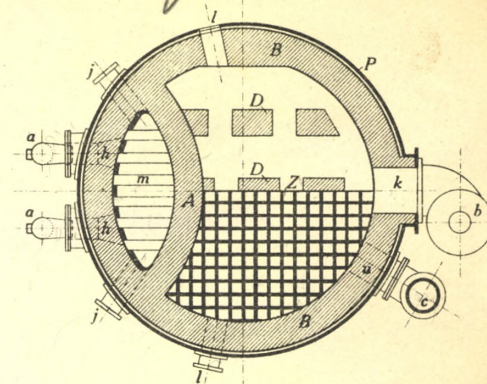
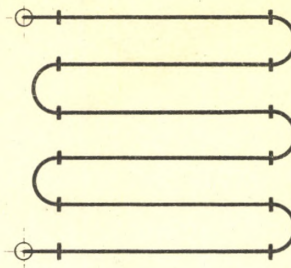
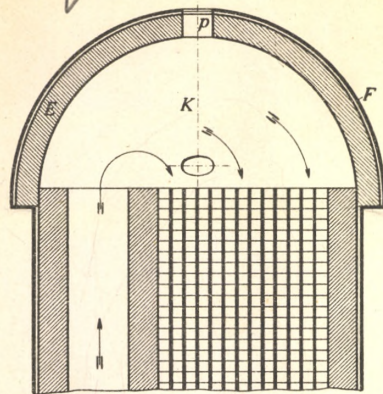


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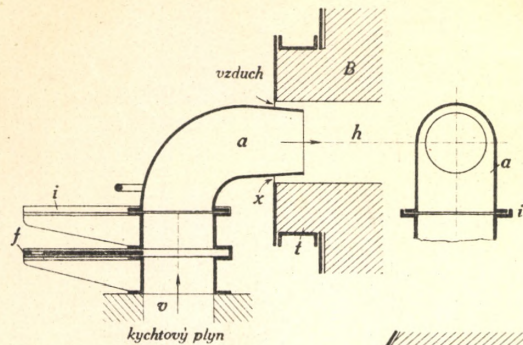
II.

blad.

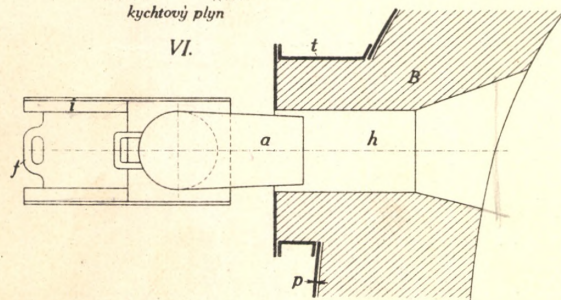




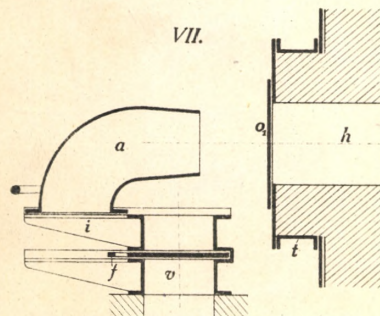
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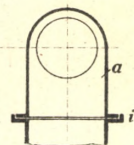
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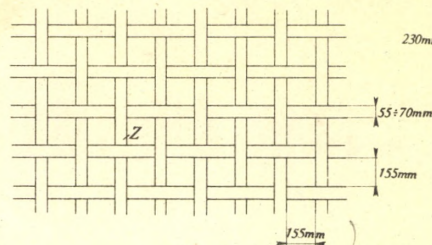
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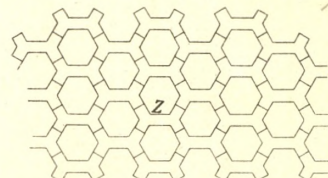
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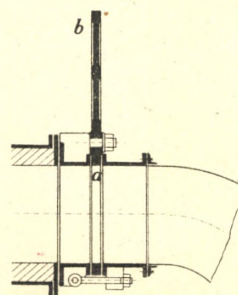
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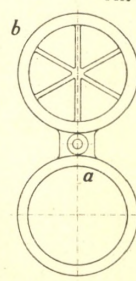
II.



X.

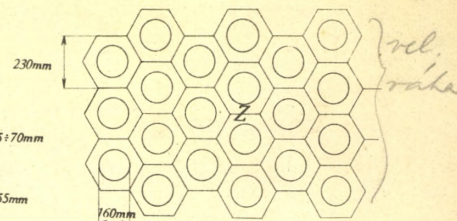


XI.



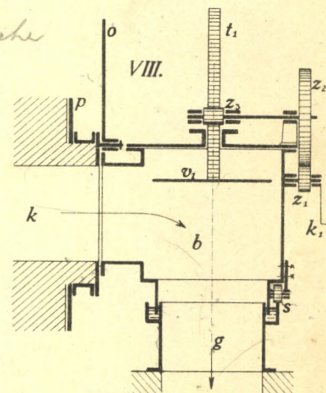
III.

Tabulka 11.

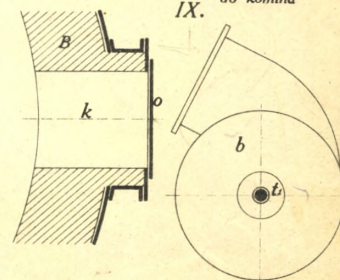


vzduch

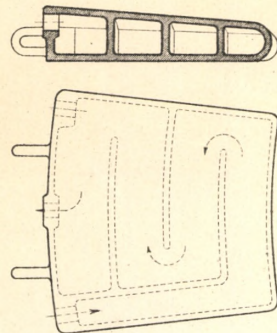
VIII.



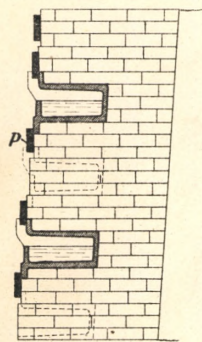
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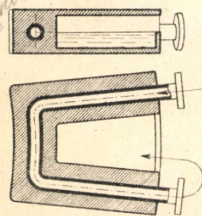
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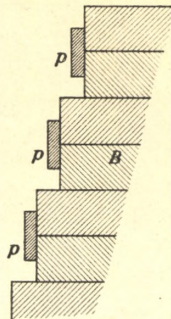
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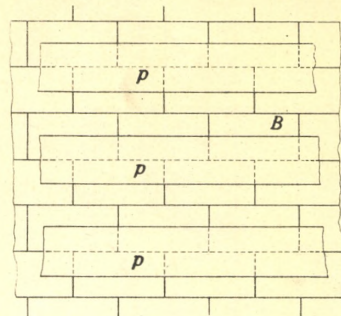
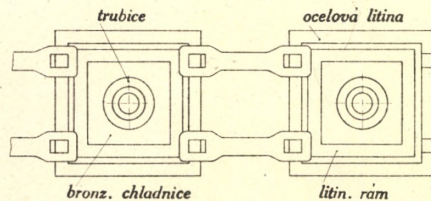
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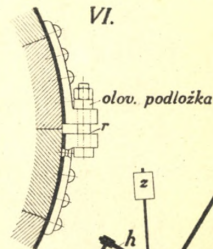
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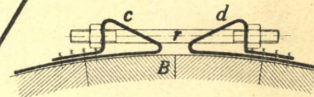
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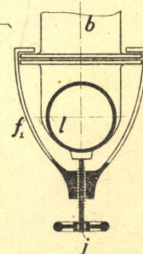
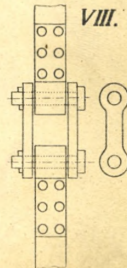
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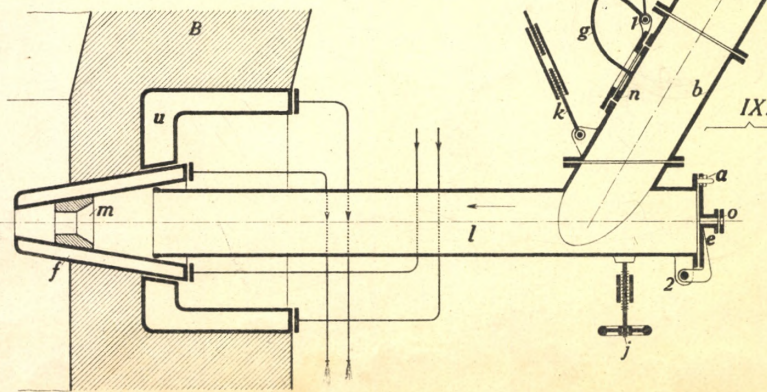
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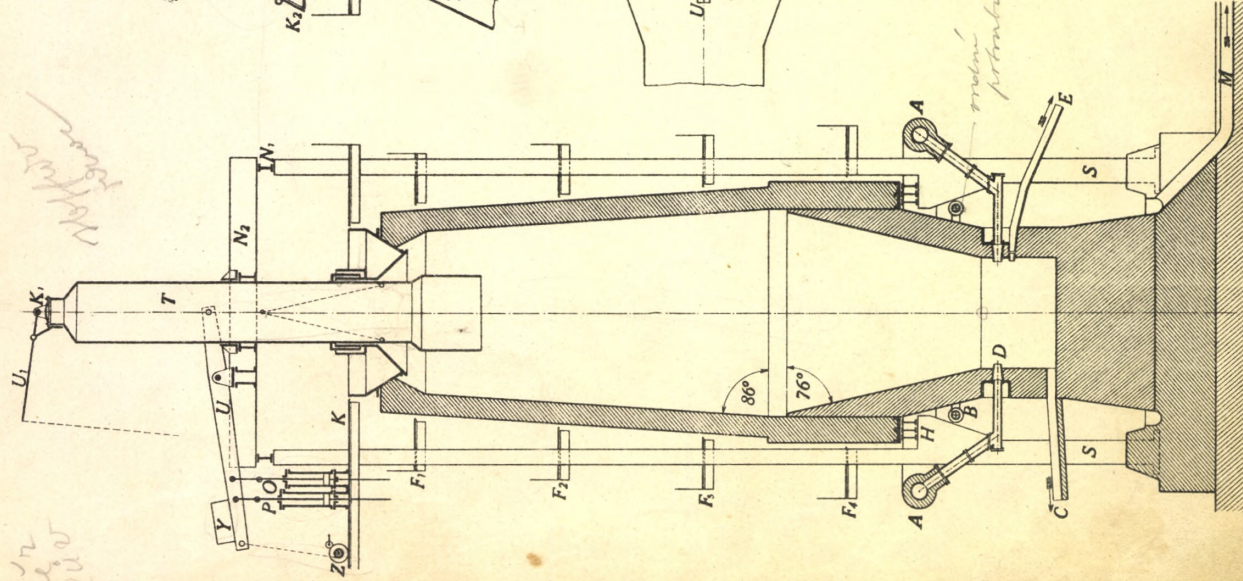
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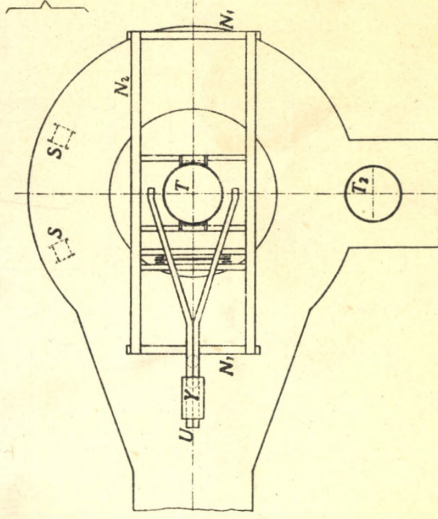
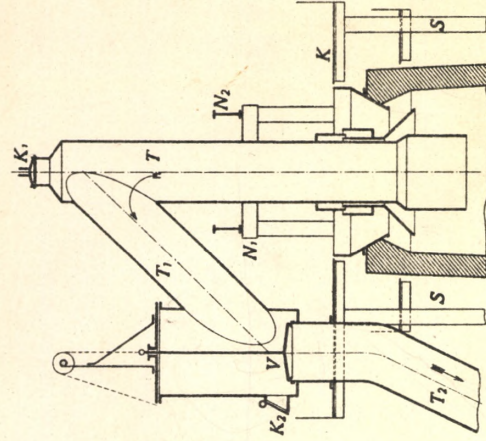
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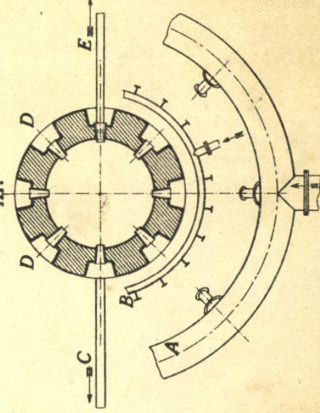
I.



II.

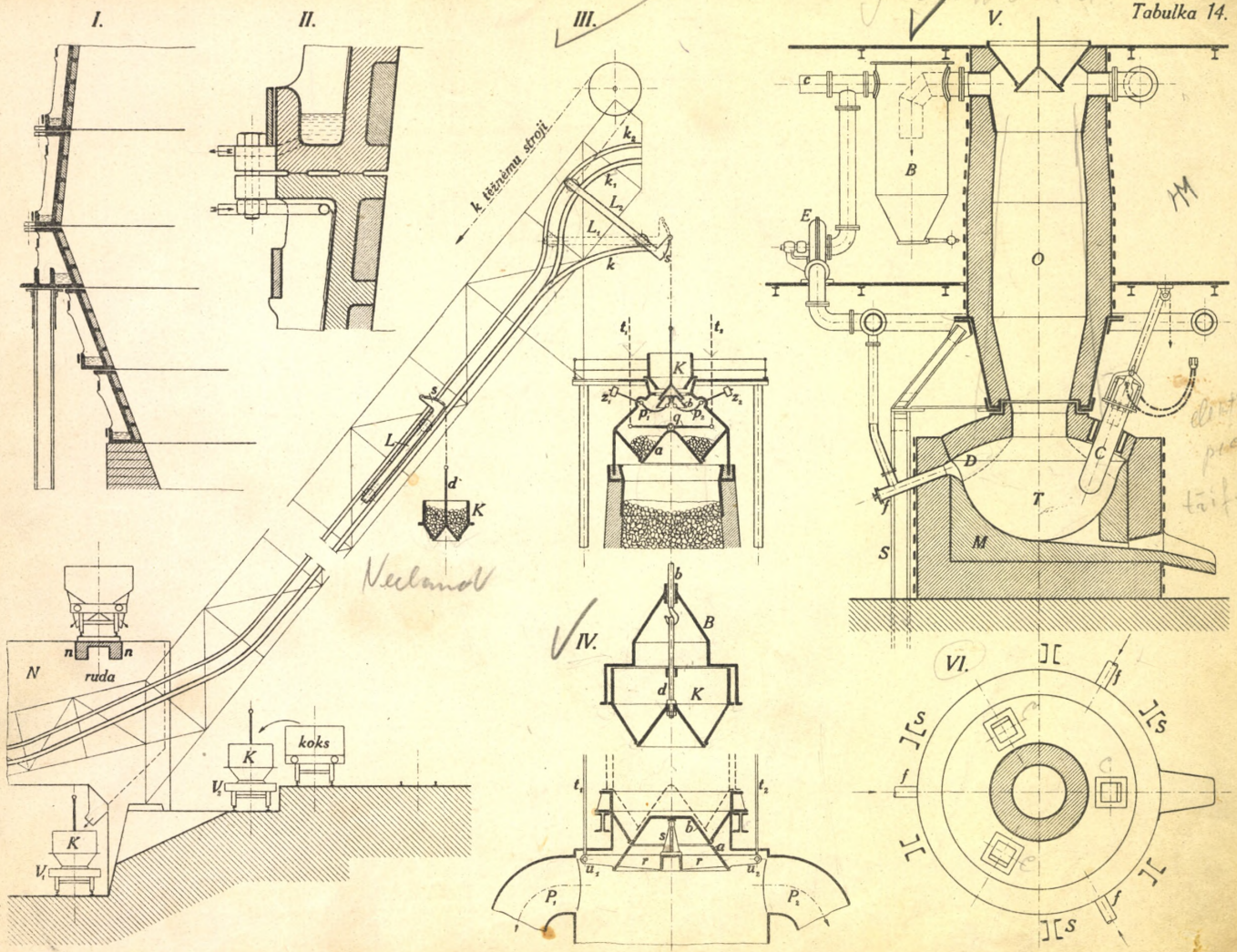


III.

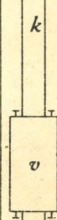
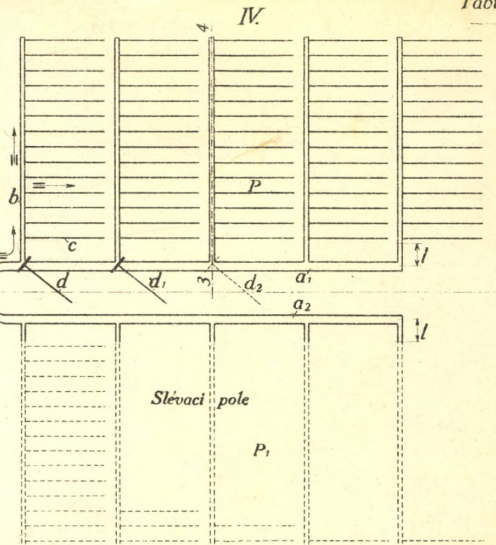
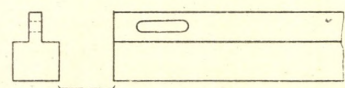
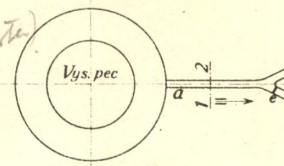
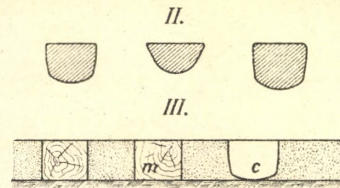
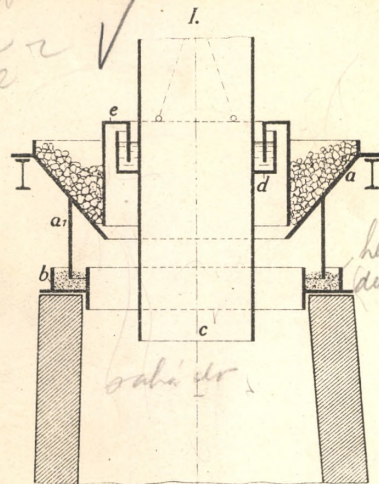


0 1 2 3 4 5 6 7 dm

Měřič



*Langenau
zareč*



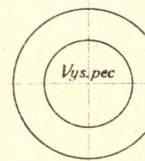
VI.
Řez 1-2.

VII.



Řez 5-6.

Řez 7-8.

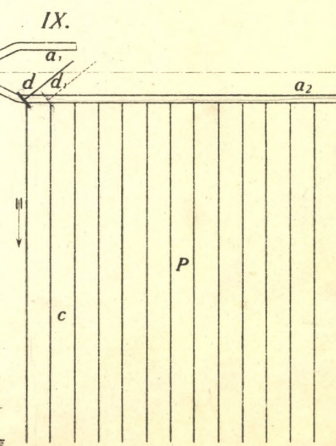
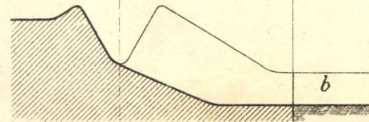


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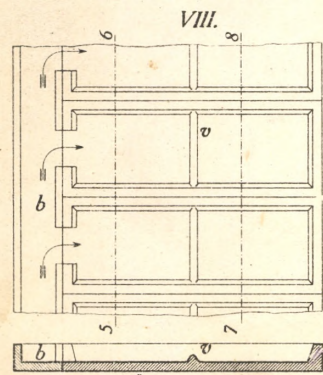
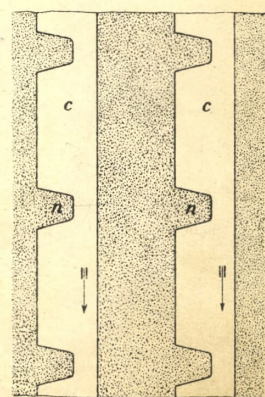
Řez 3-4.

XII.

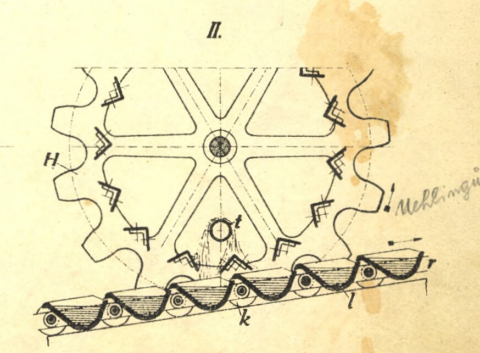
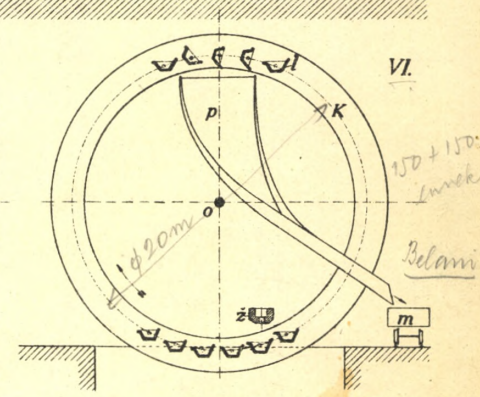
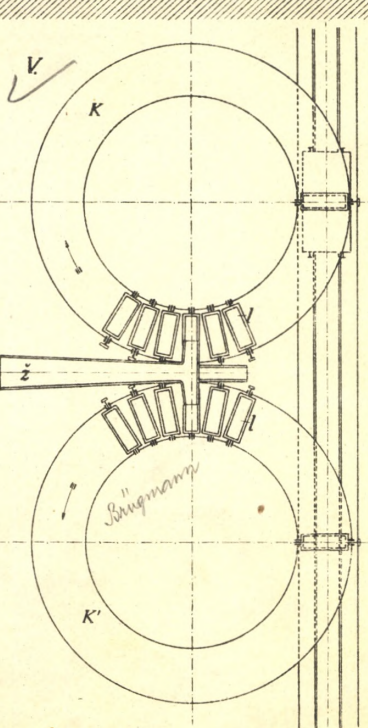
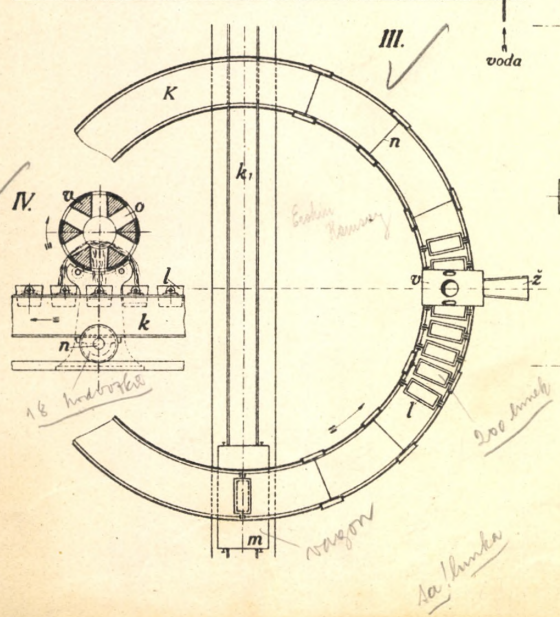
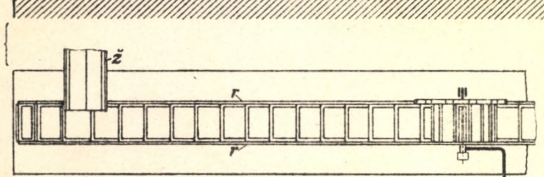
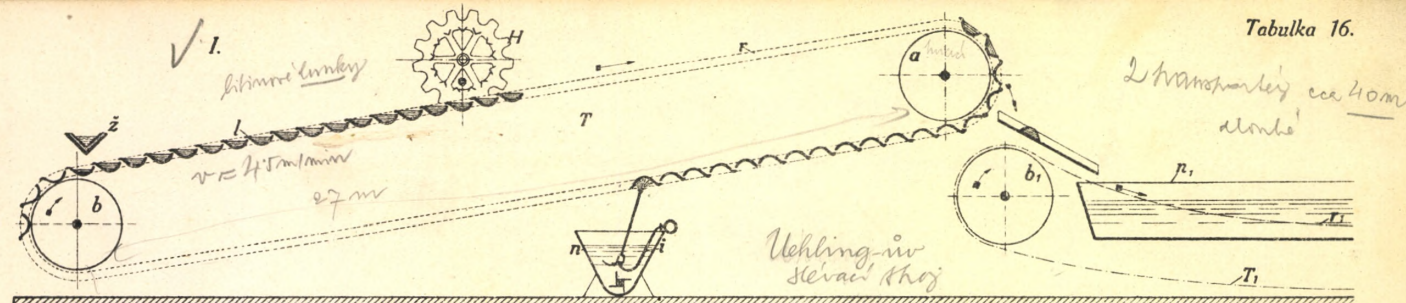
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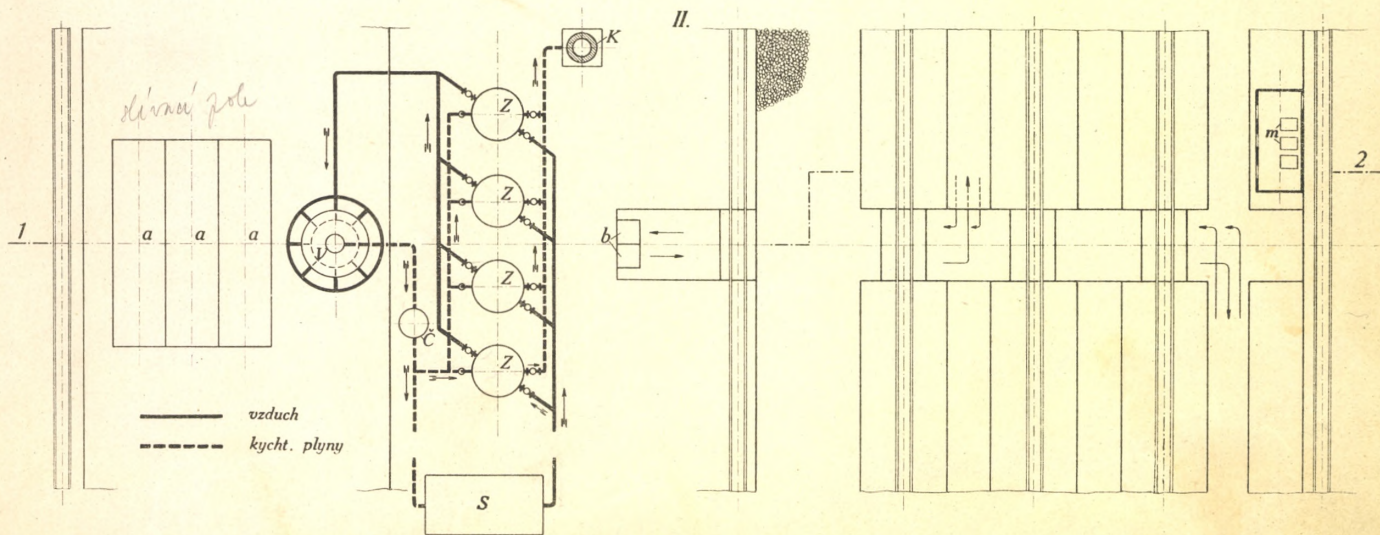
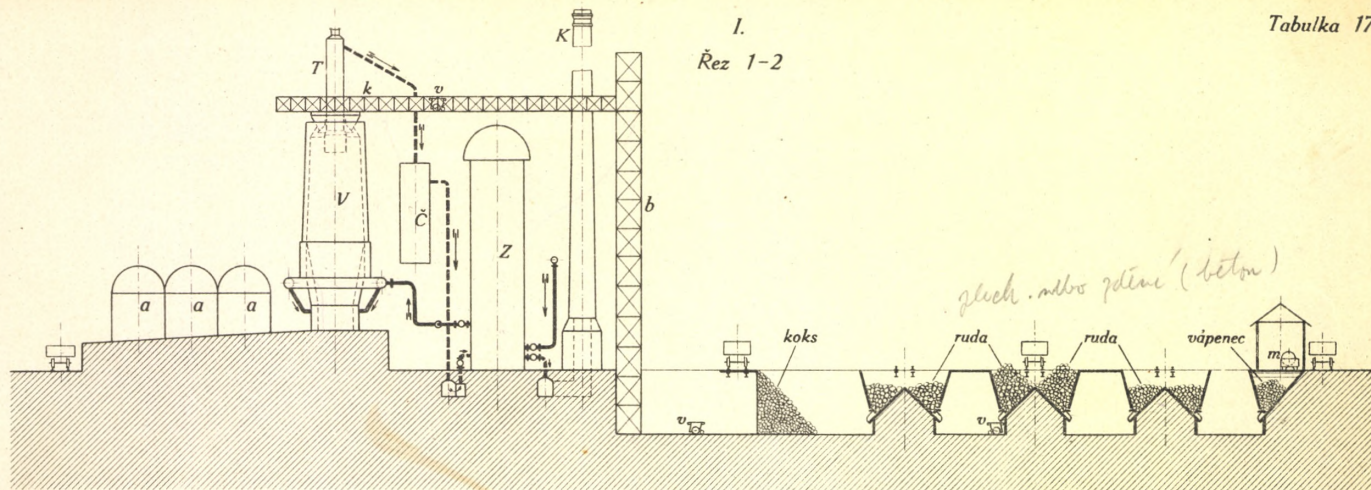
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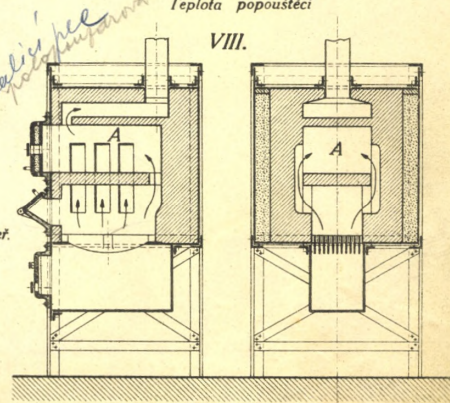
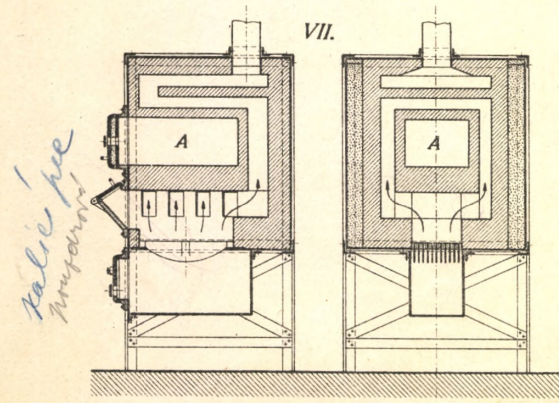
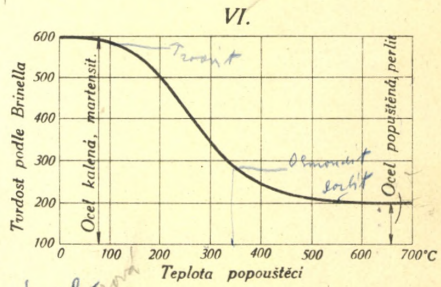
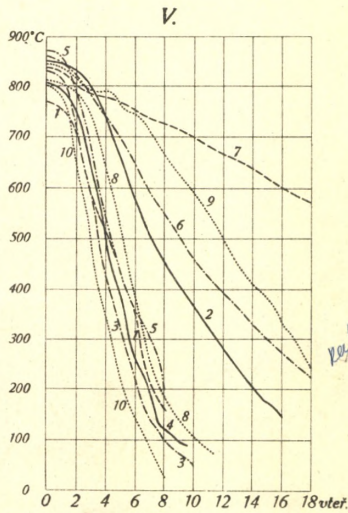
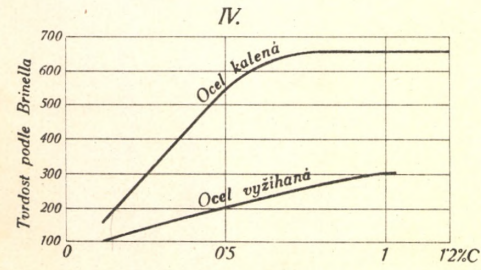
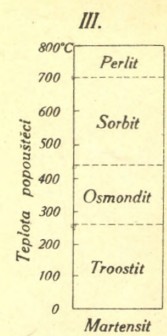
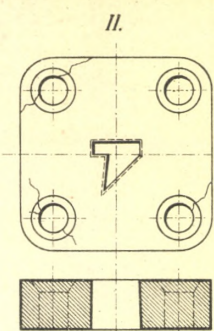
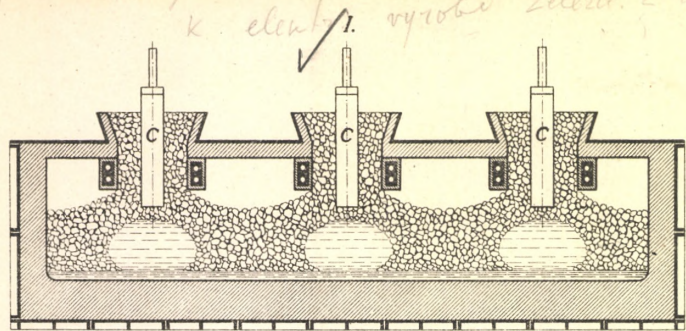


Řez 9-10.



I.
Řez 1-2





1. Studená voda
2. Rtuť
3. Voda 20°C
4. Slaná voda
5. 10% kys. sírová
6. Lněný olej
7. Olovo
8. Voda 50°C
9. Voda 100°C
10. Spreha

IV.

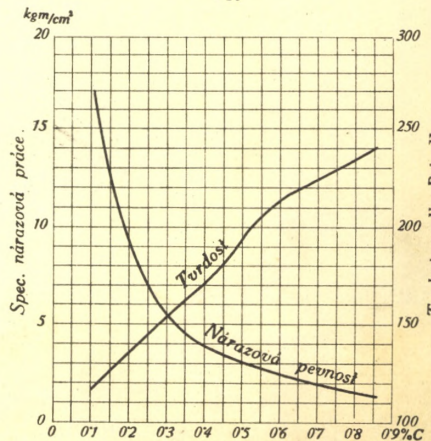
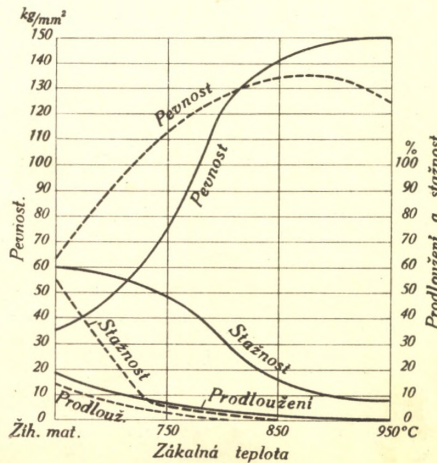
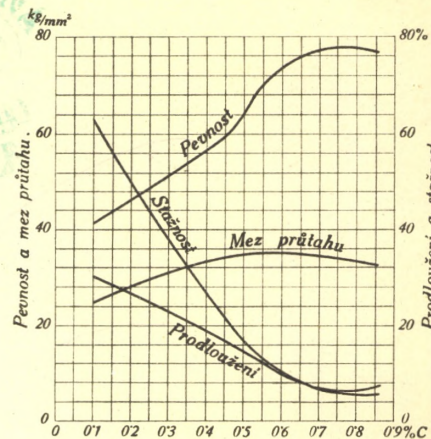
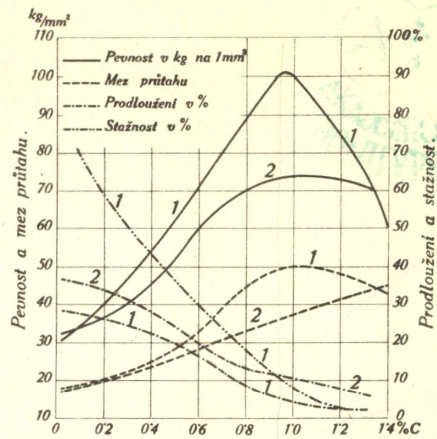
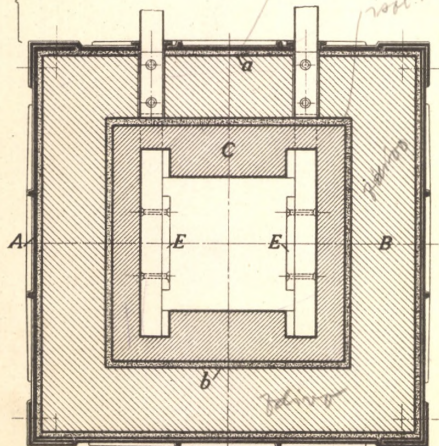
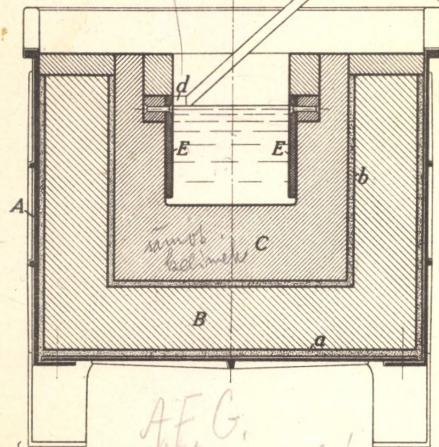
III.

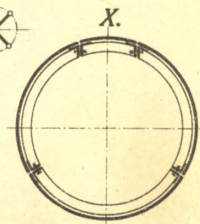
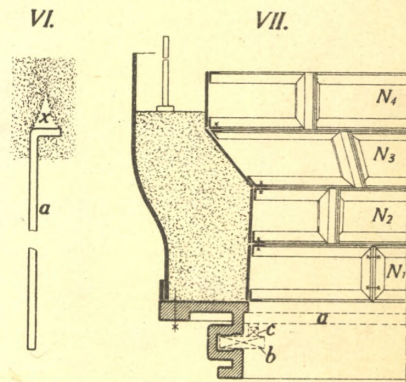
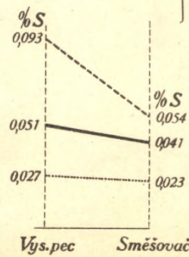
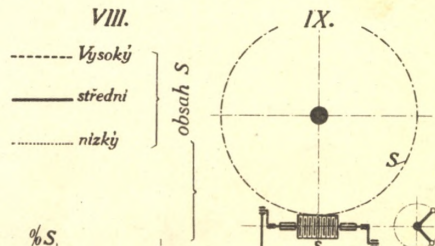
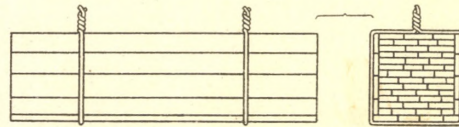
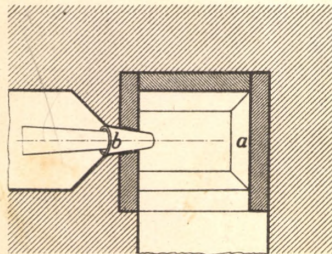
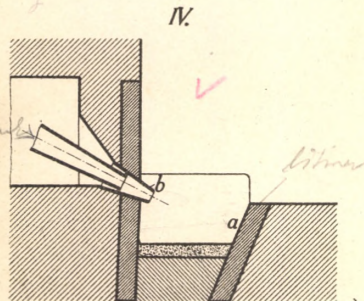
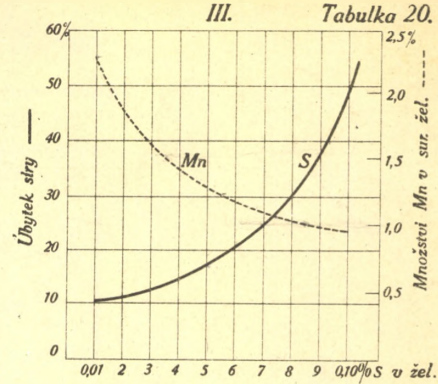
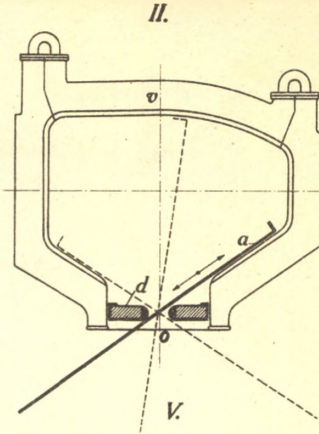
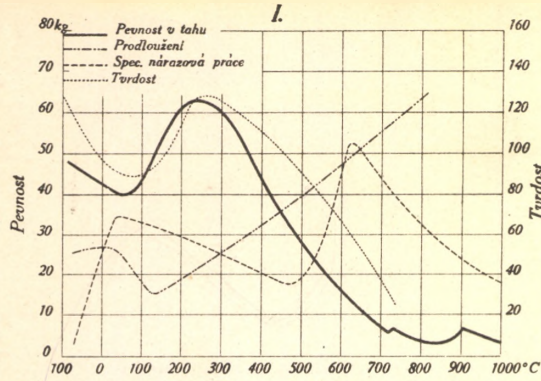
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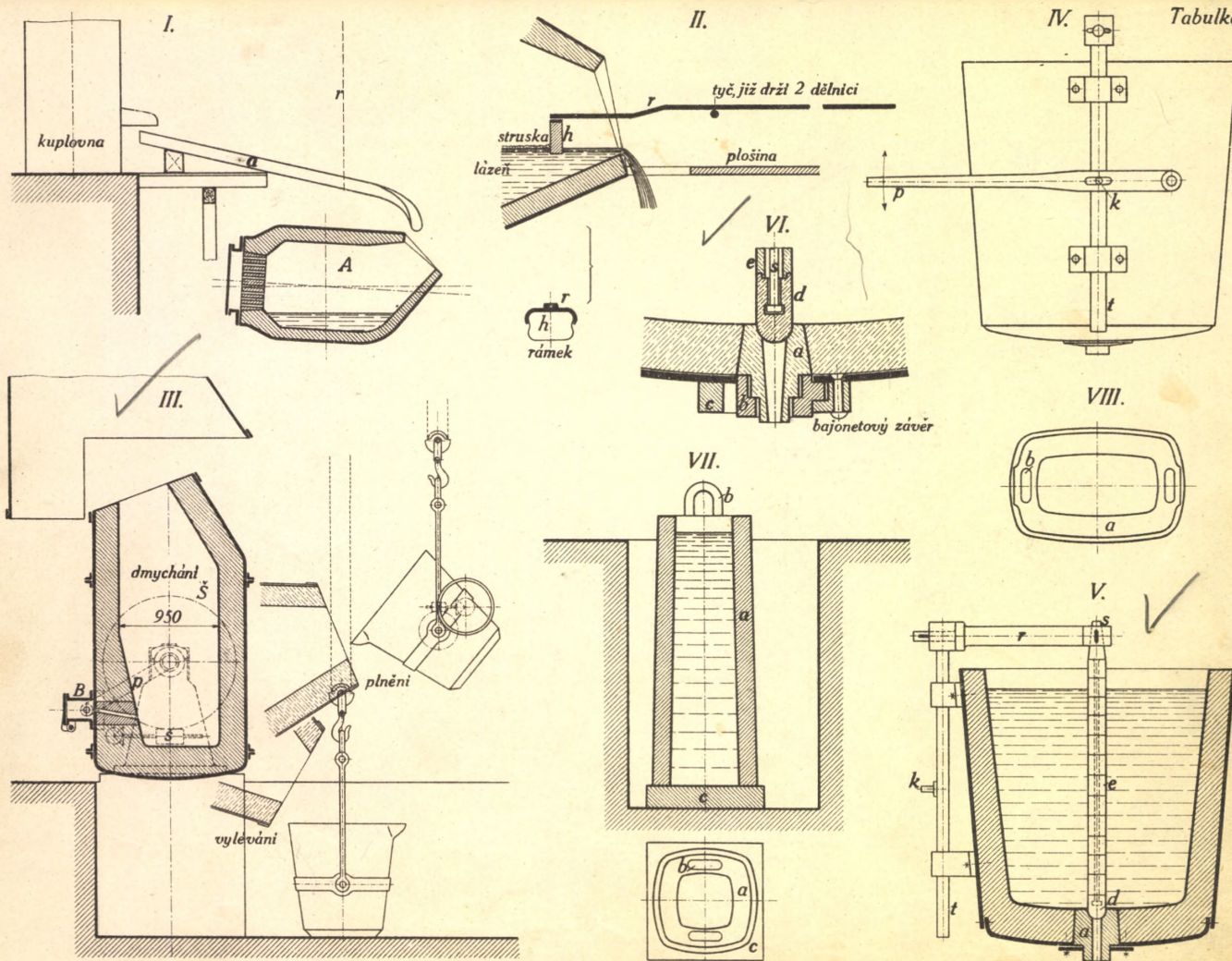
VI.

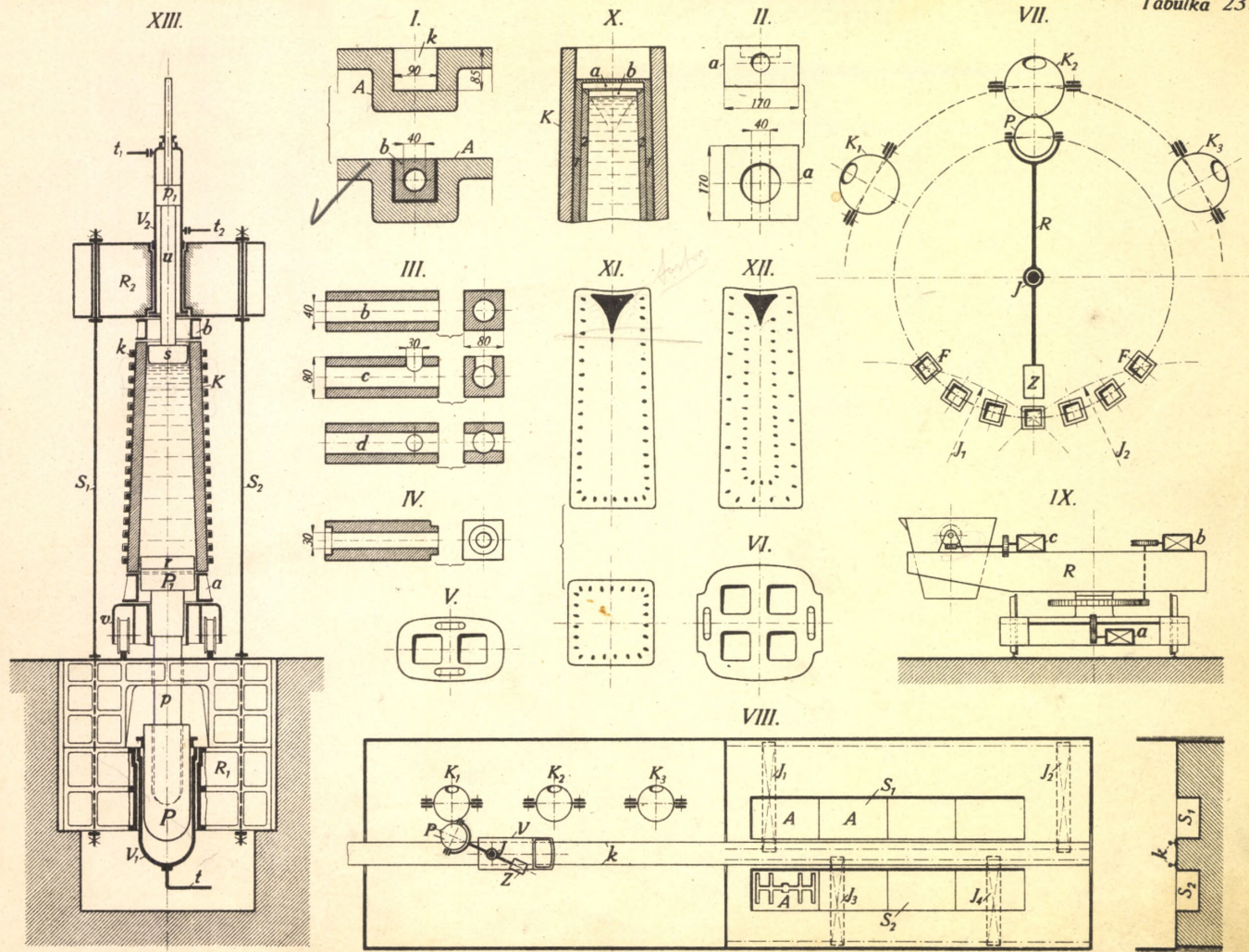
V.

II.

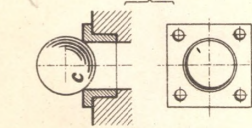
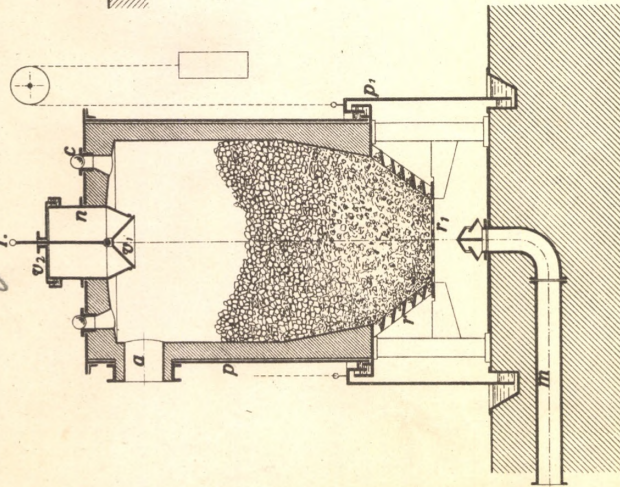




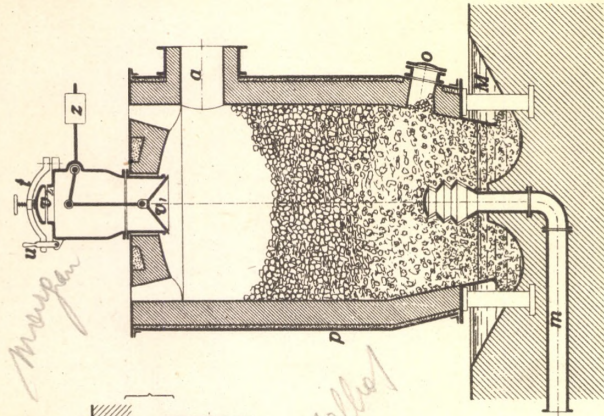




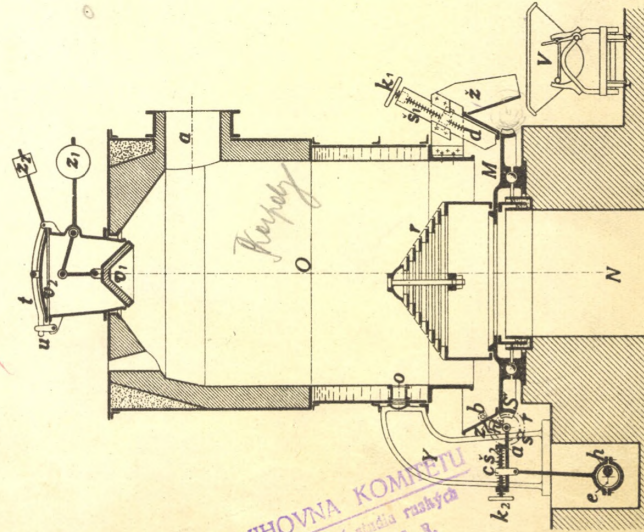
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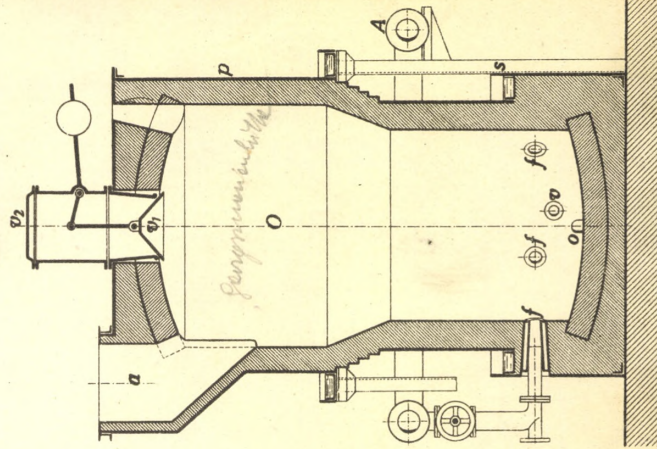
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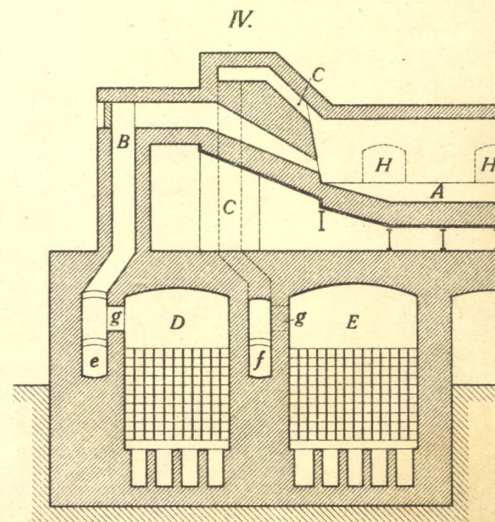
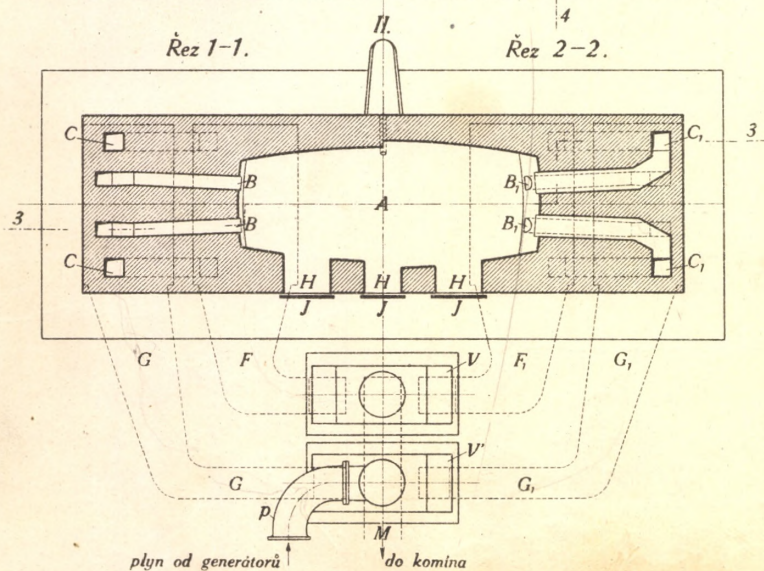
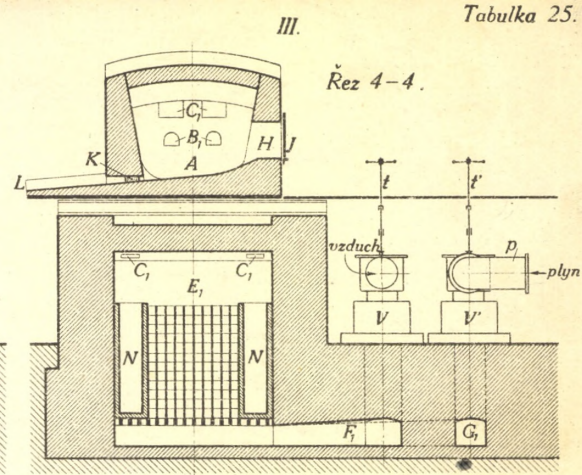
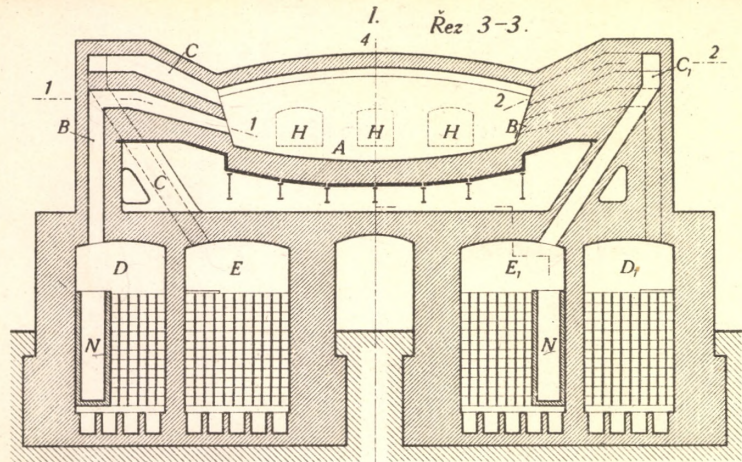


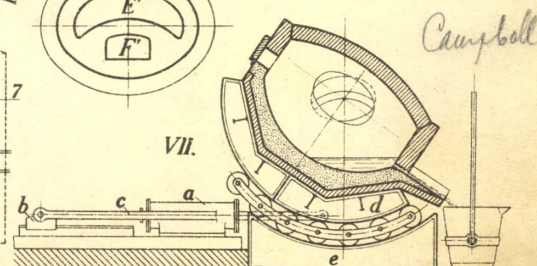
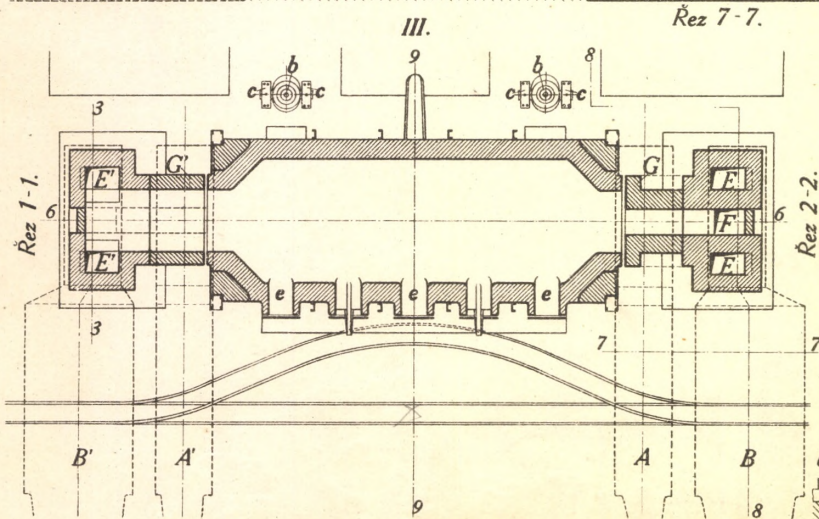
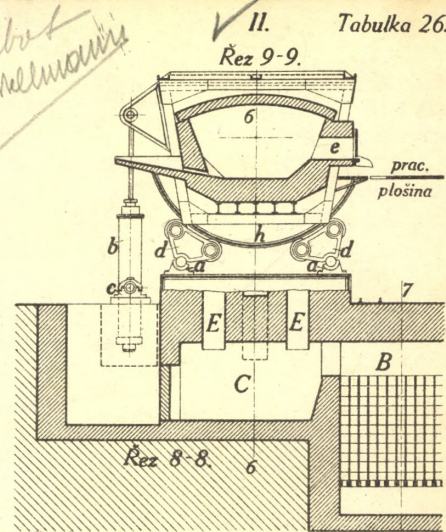
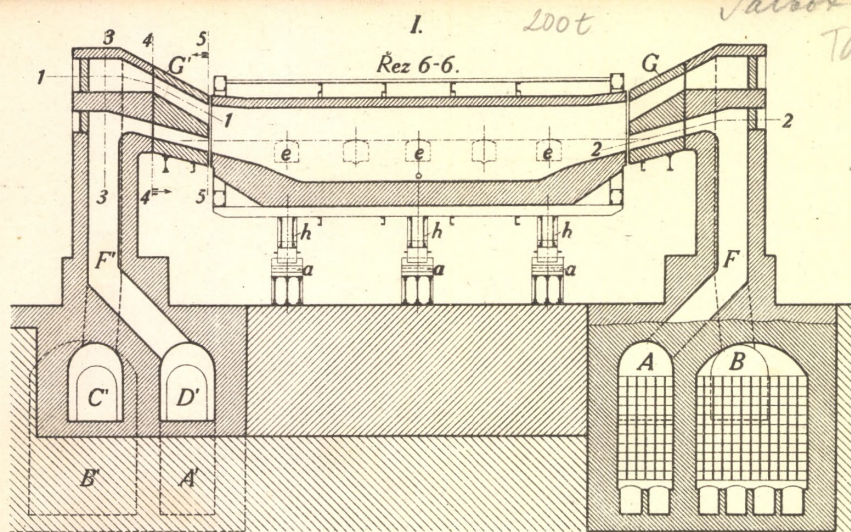
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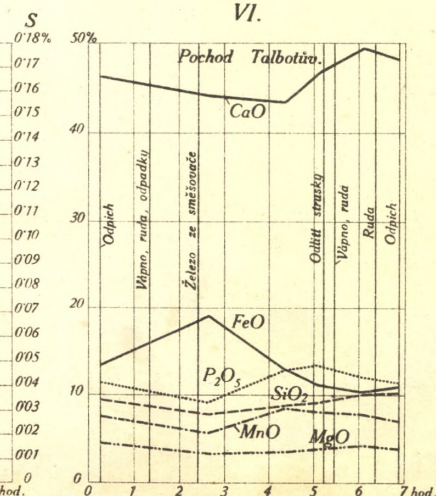
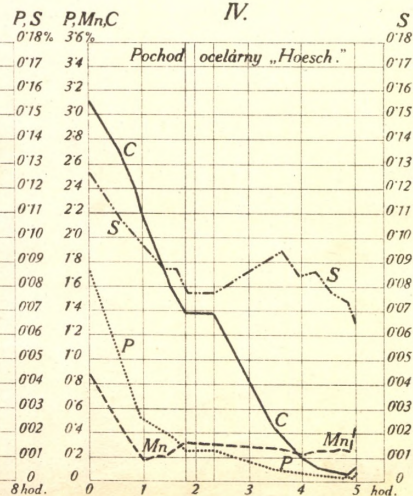
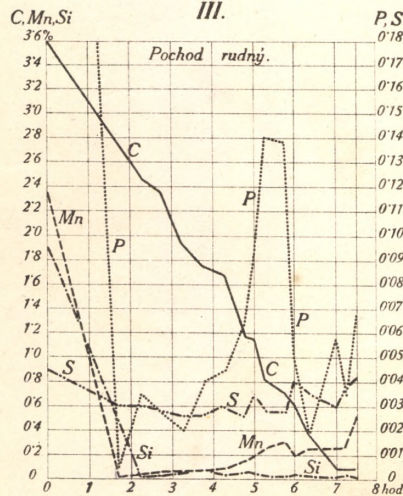
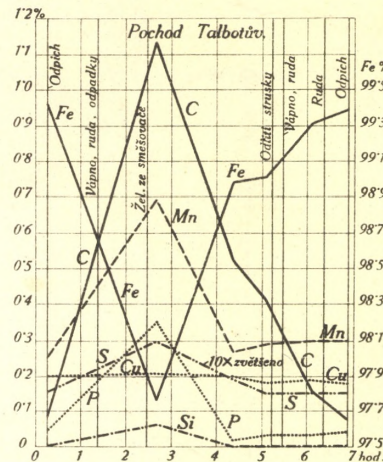
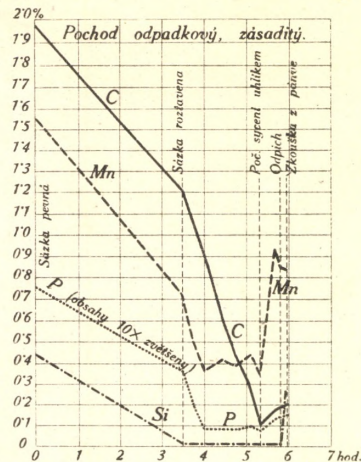
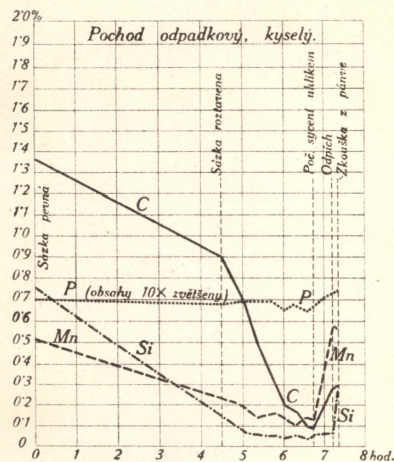
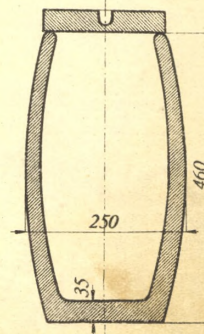
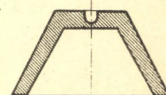
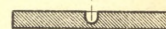
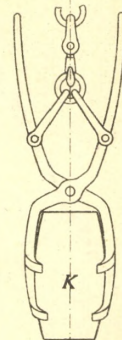


V.

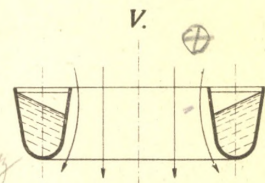
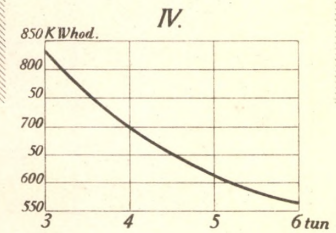
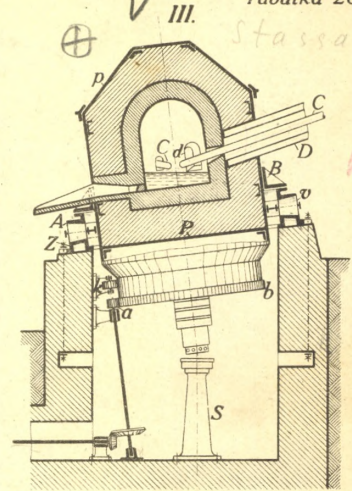
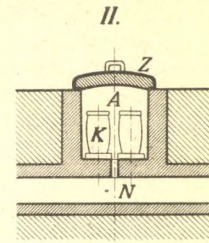
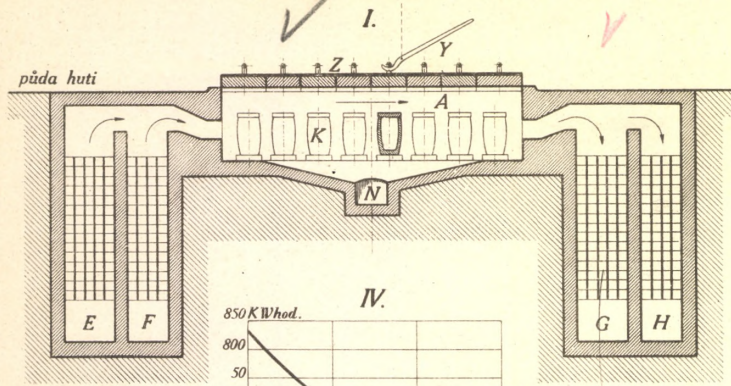




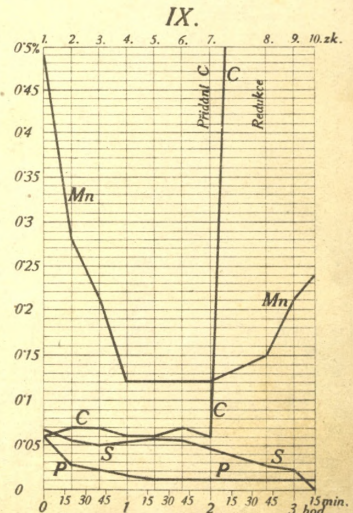
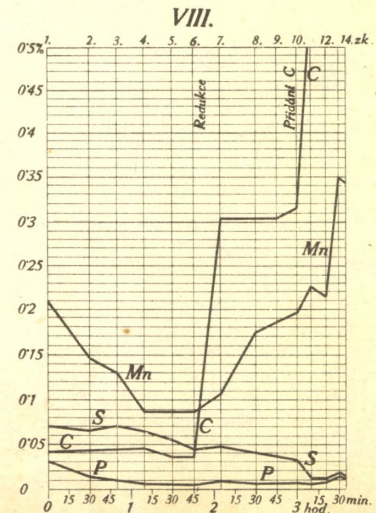
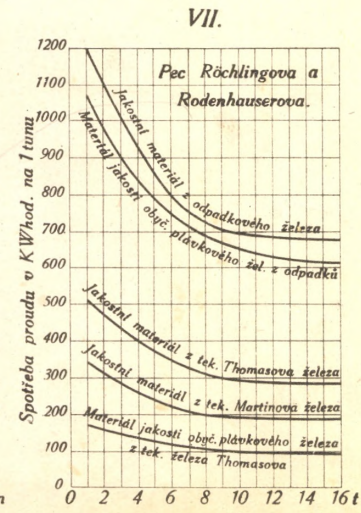
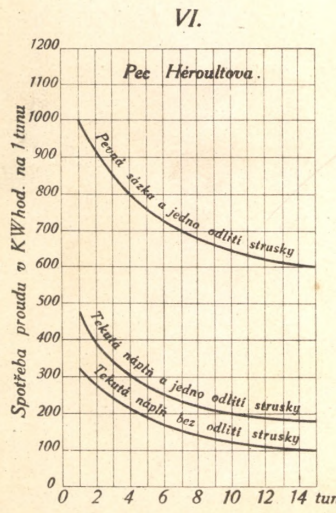




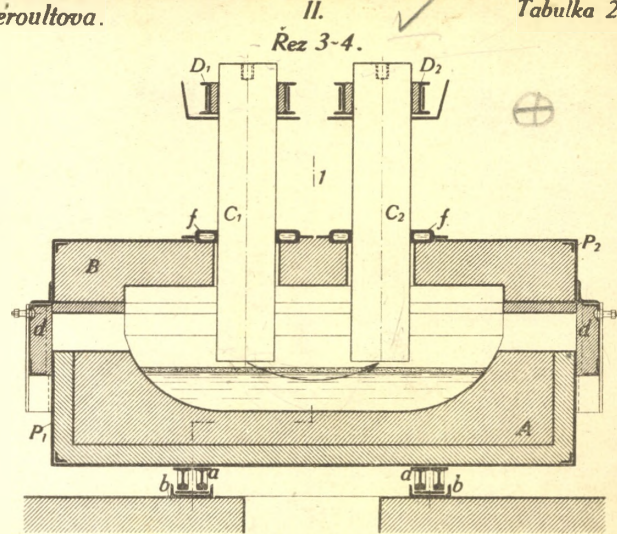
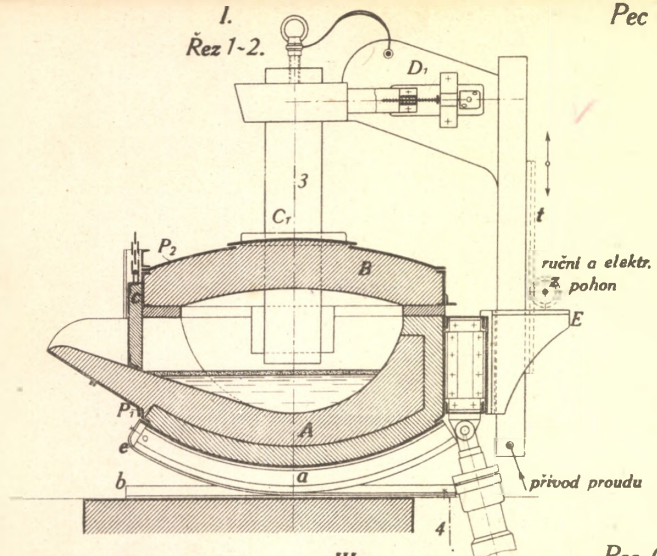
Stassano



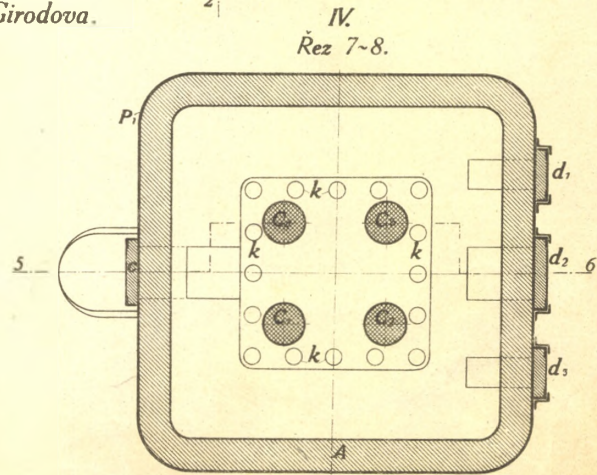
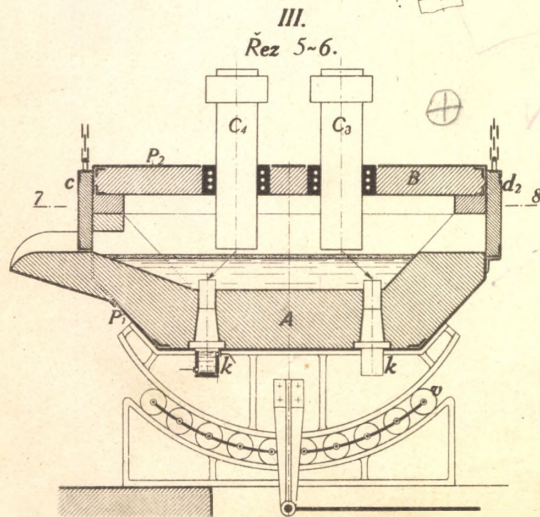
regulátorové kamery



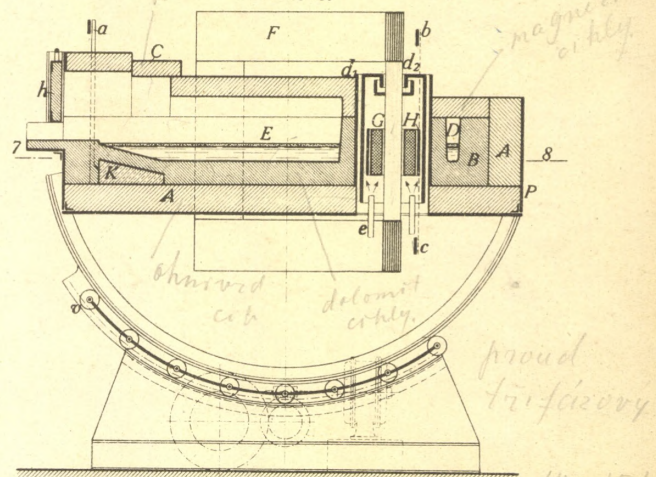
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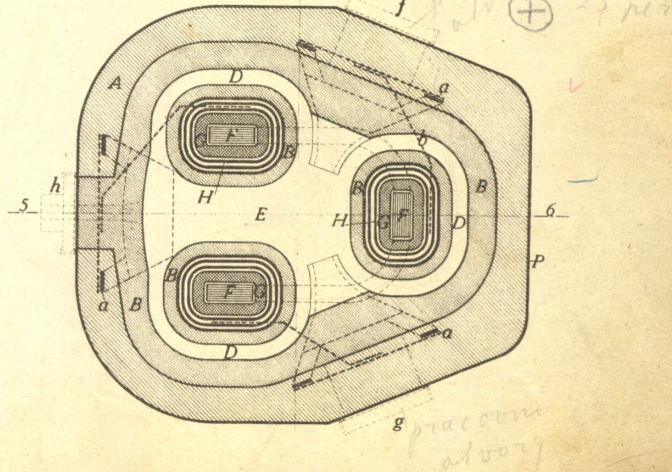
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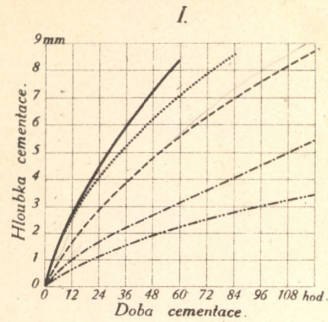


III.
Řez 5-6.

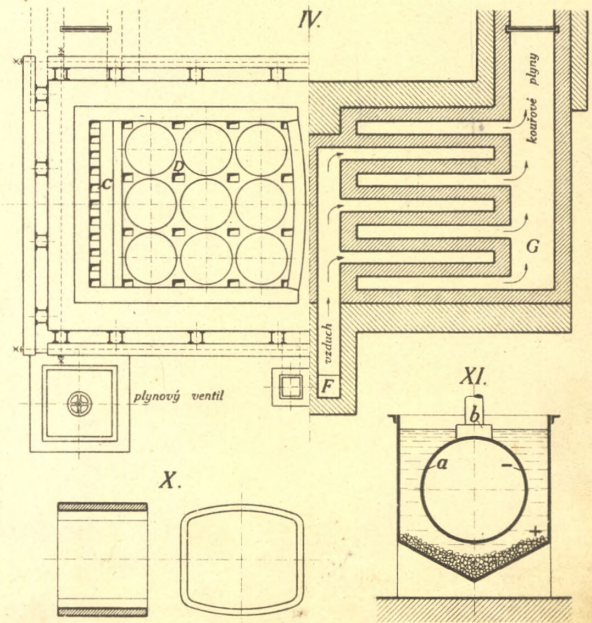
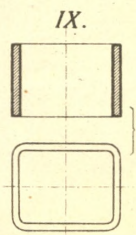
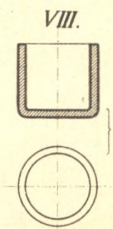
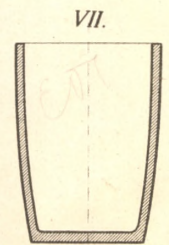
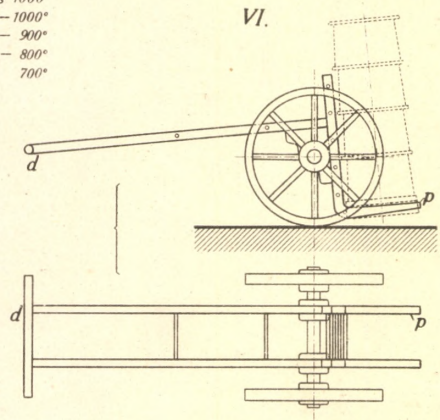
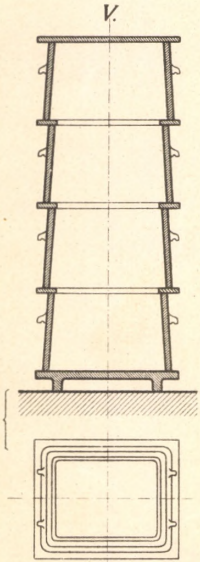
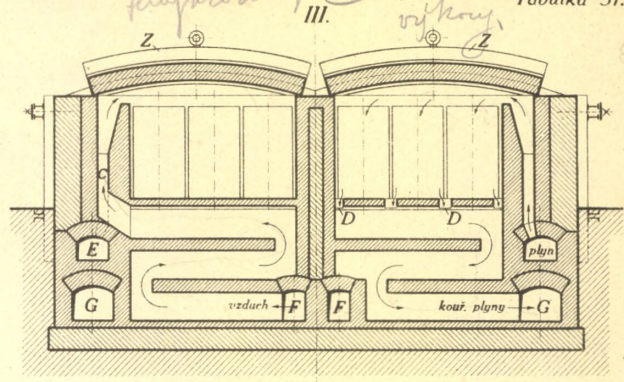
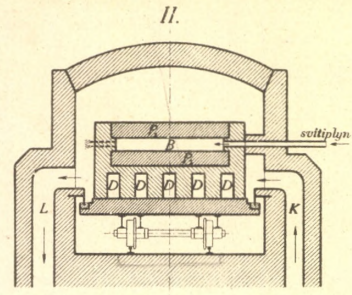


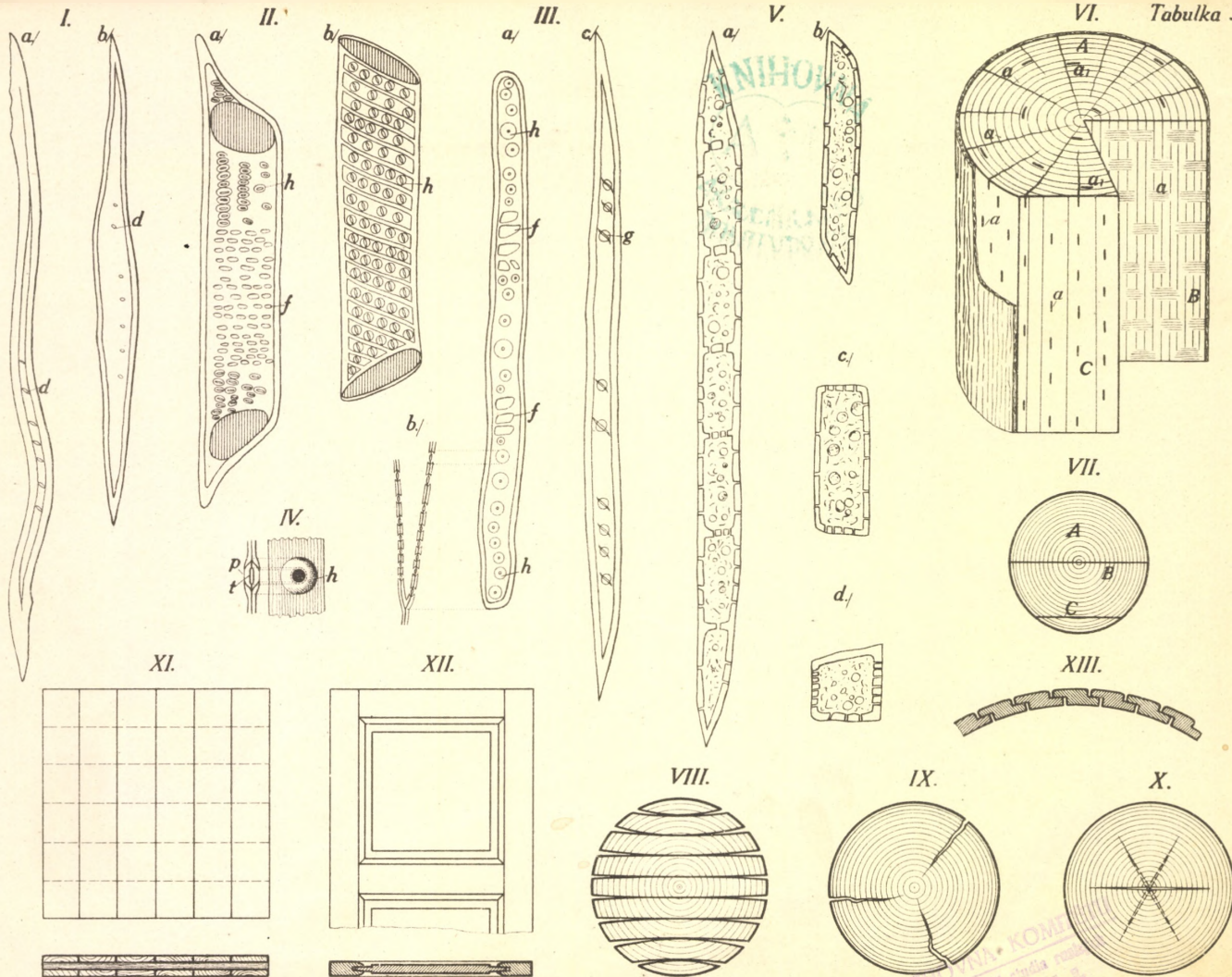
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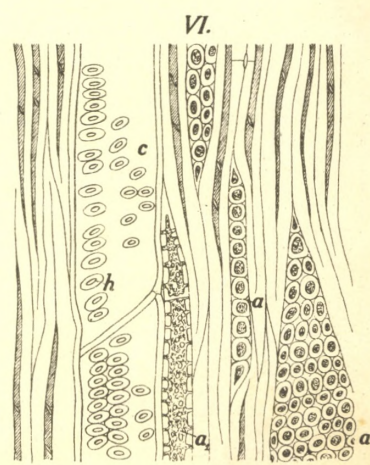
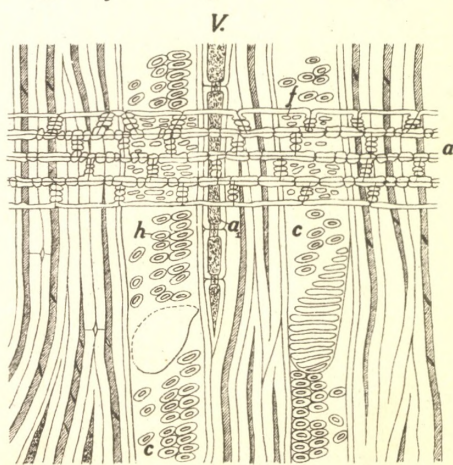
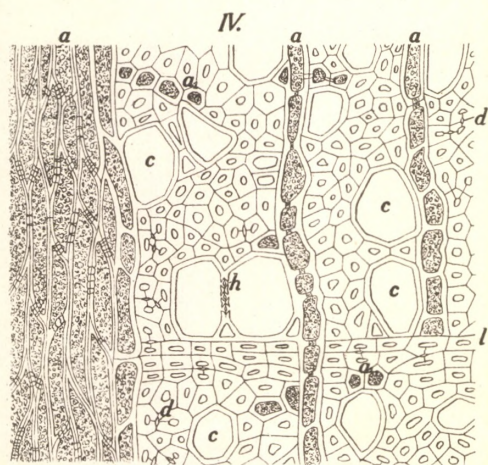
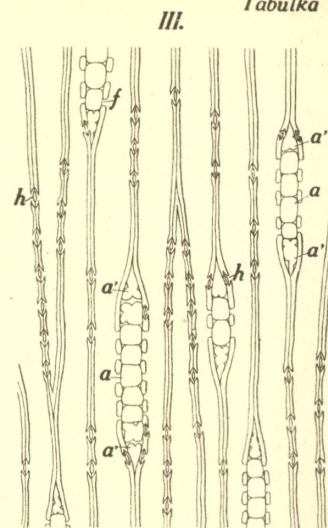
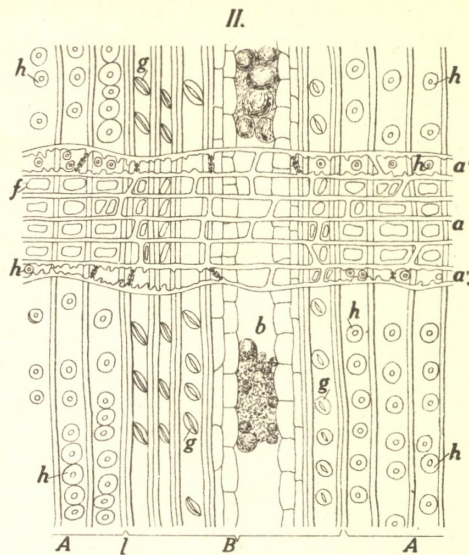
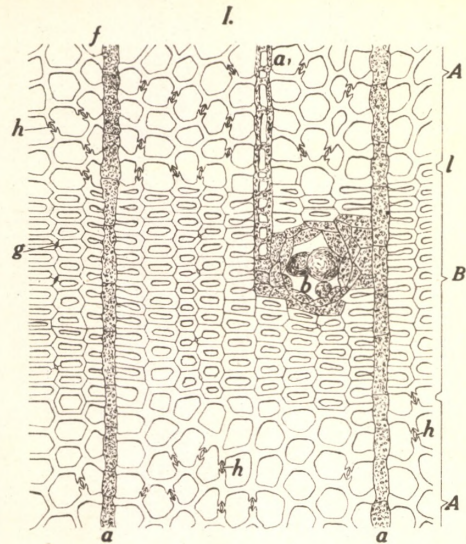


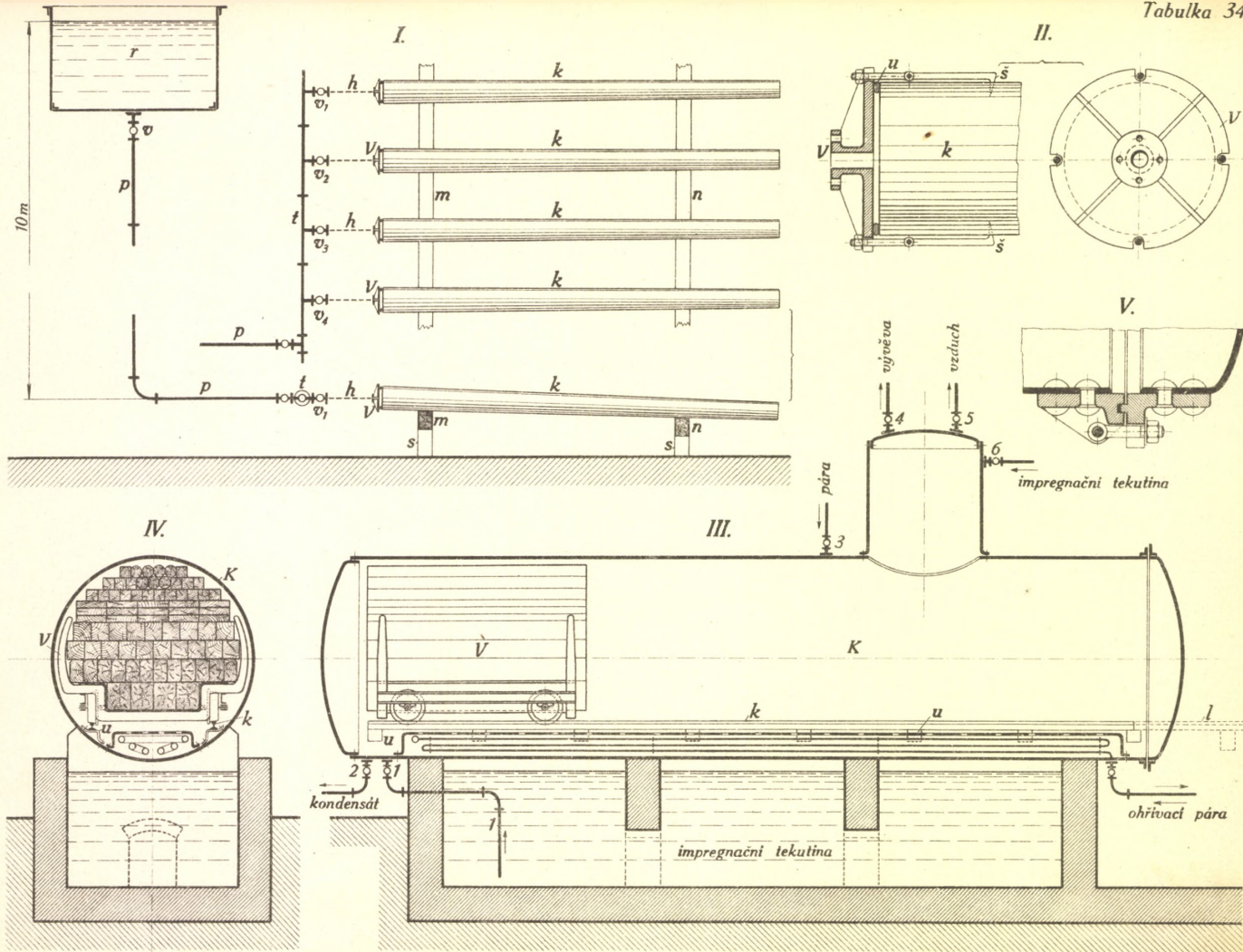


— při teplotě přes 1000°
 - - - - - " " 950 — 1000°
 " " 850 — 900°
 - . - . - " " 700 — 800°
 - - - - - " " do 700°





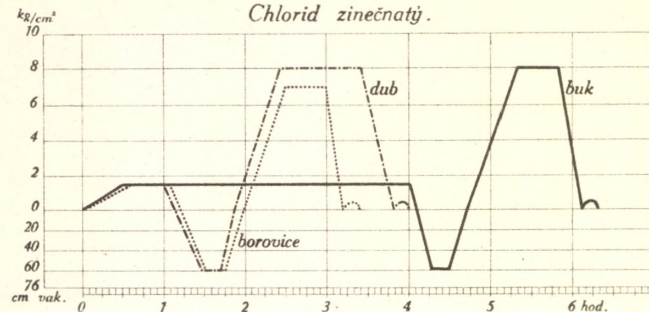




Napouštění dřeva.

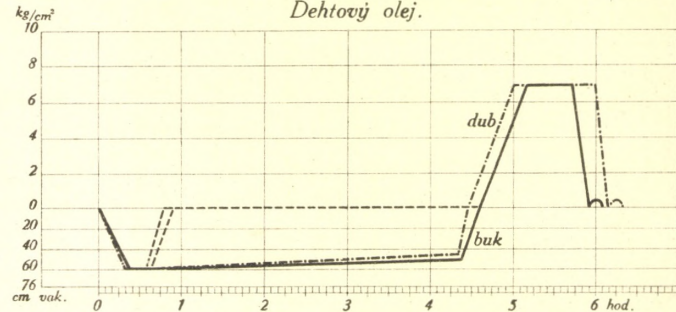
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Chlorid zinečnatý.



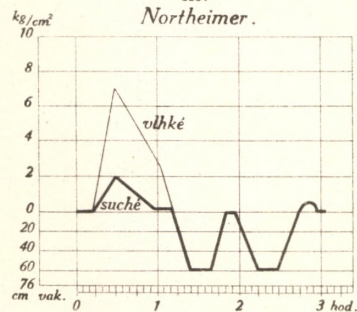
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Dehtový olej.



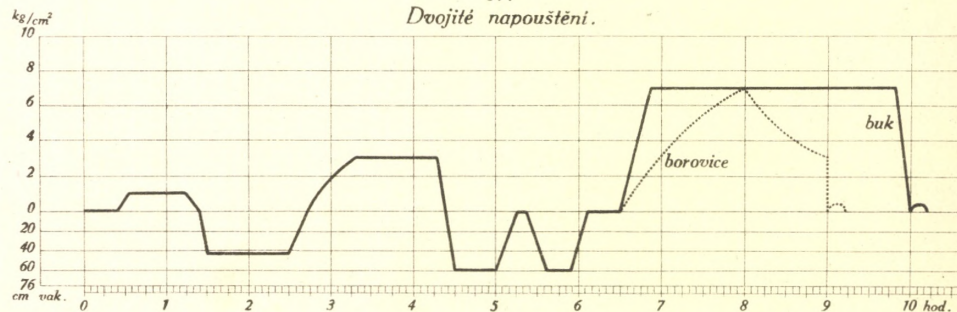
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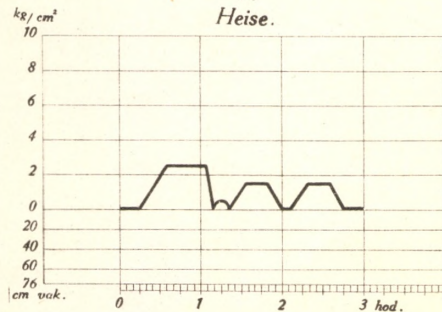
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Dvojitě napouštění.



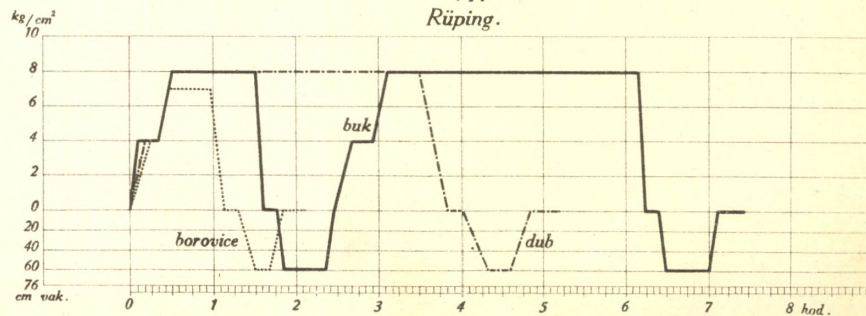
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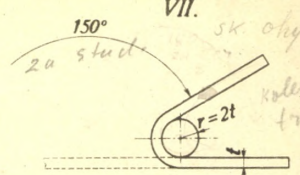
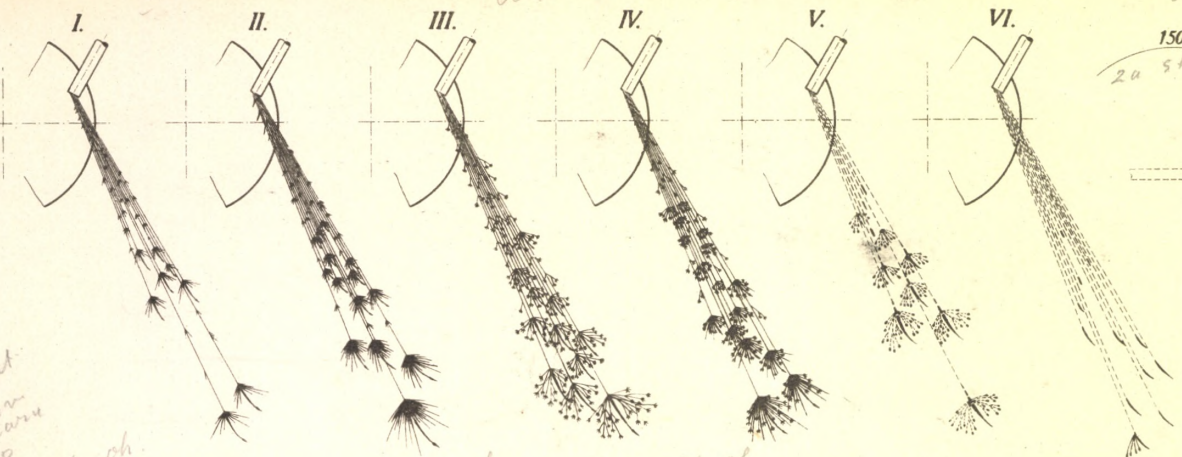
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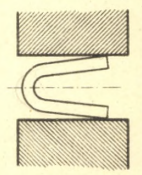
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Rüping.

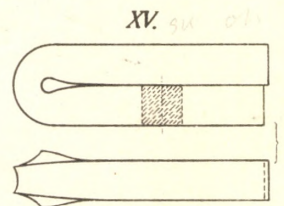
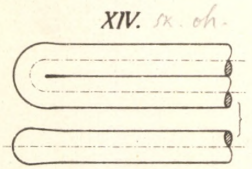
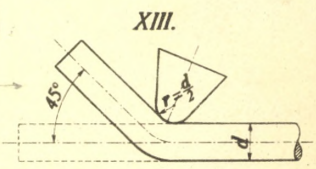
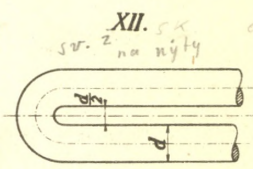
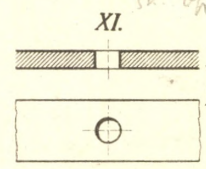
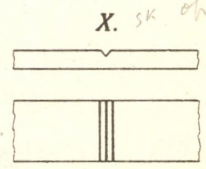
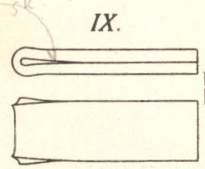




VIII.



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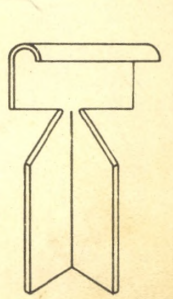
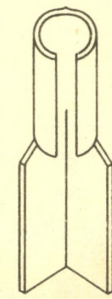
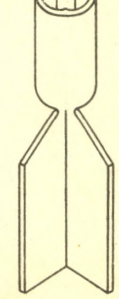
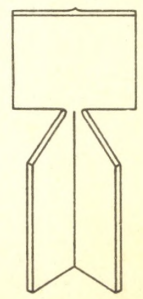
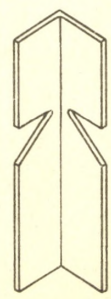
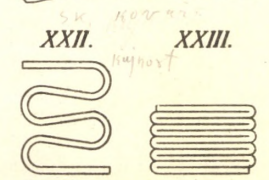
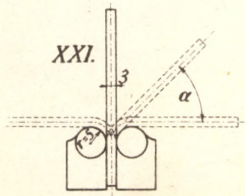
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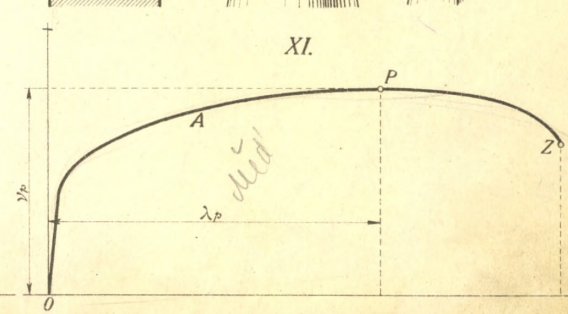
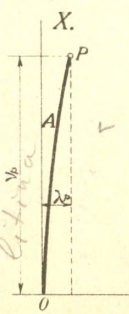
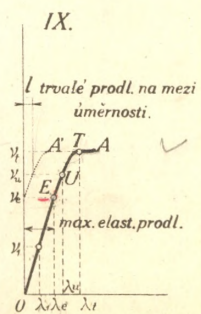
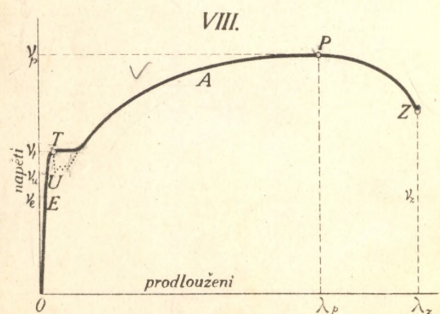
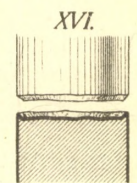
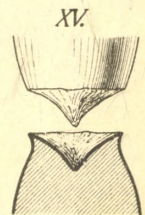
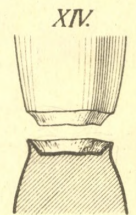
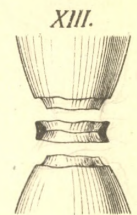
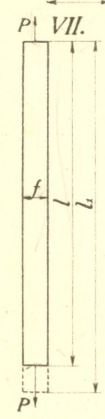
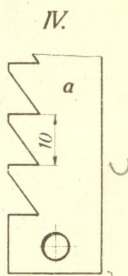
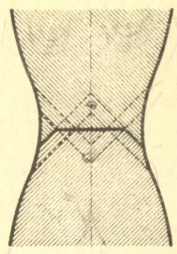
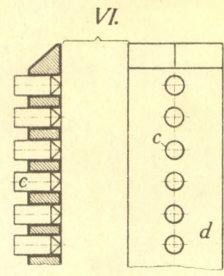
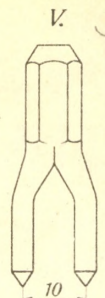
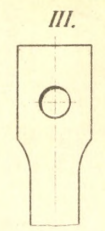
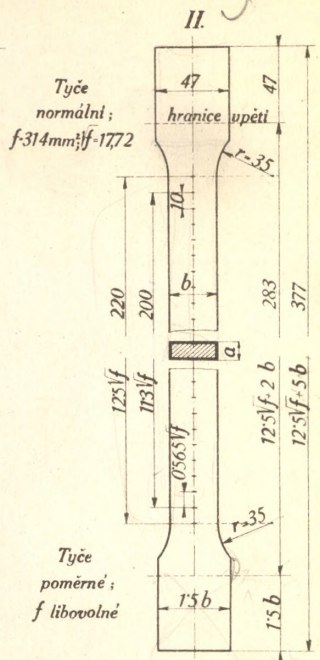
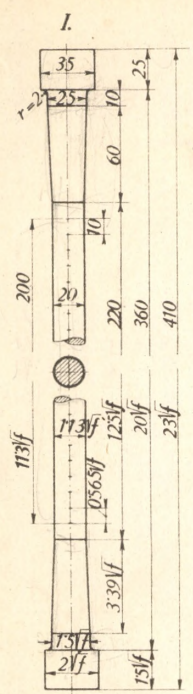
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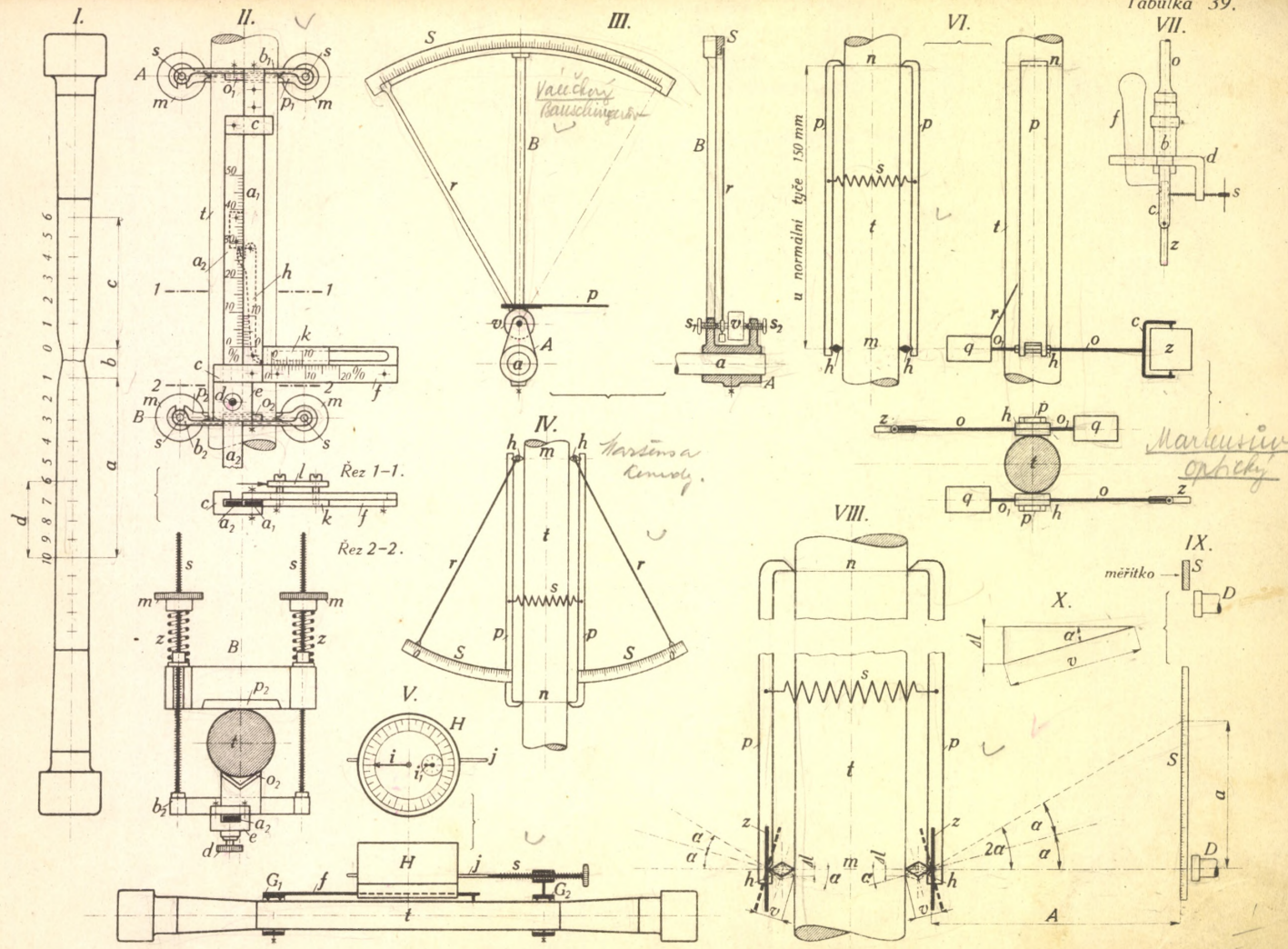
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XIX.

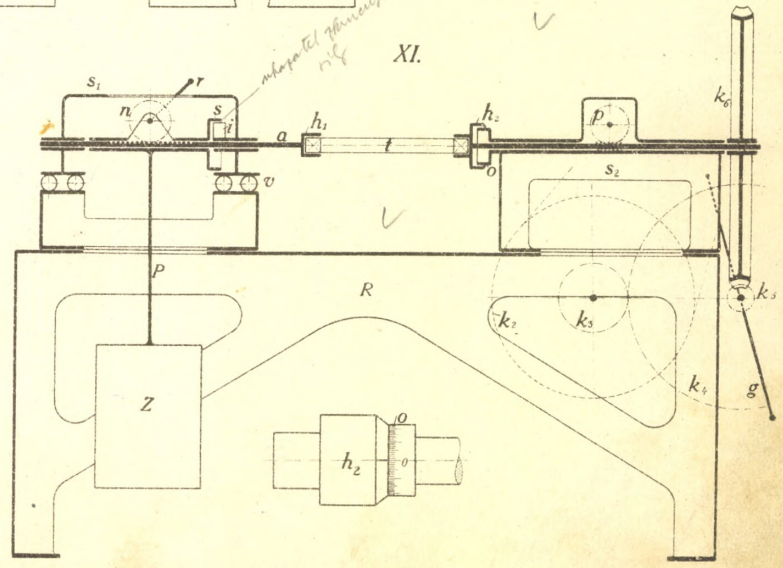
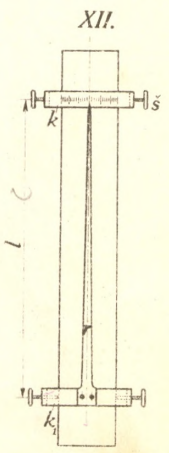
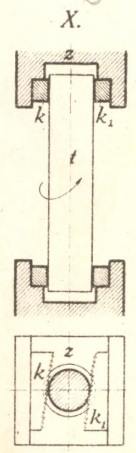
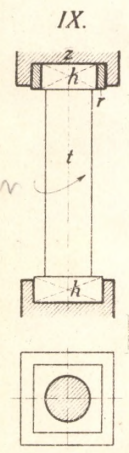
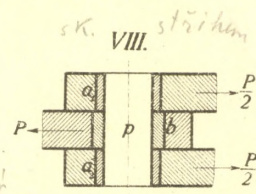
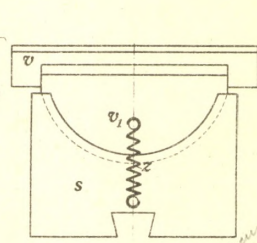
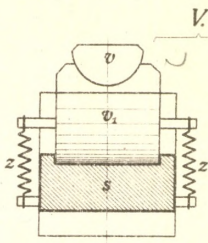
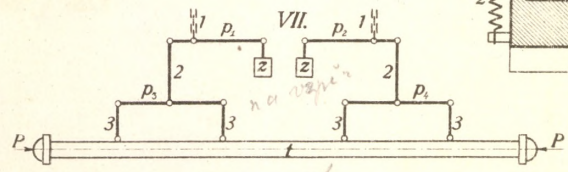
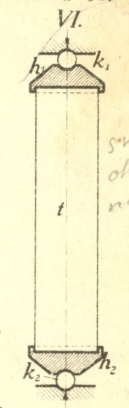
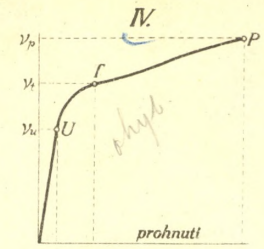
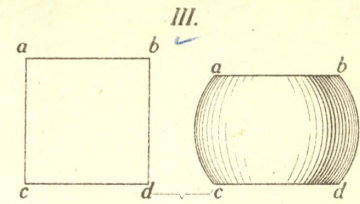
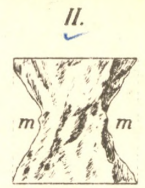
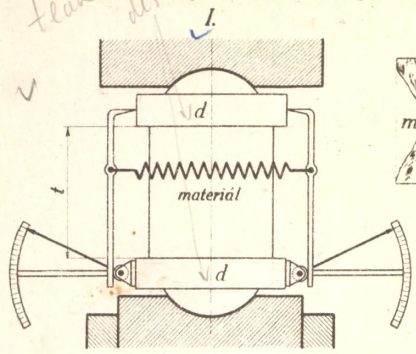
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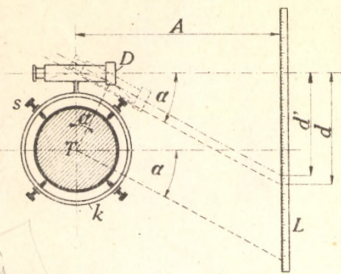




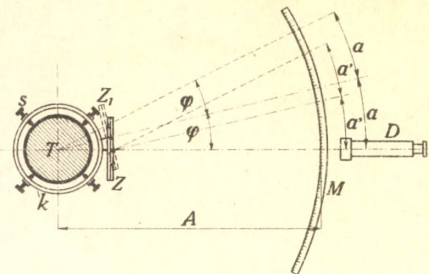
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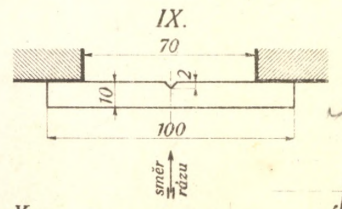
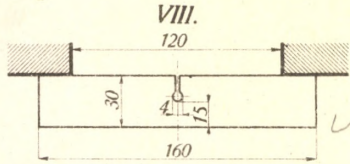
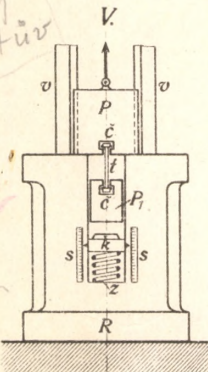
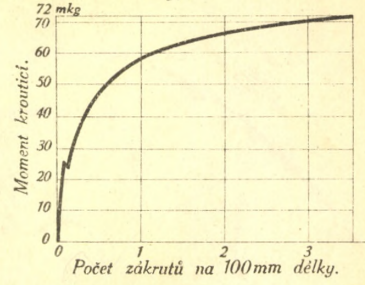
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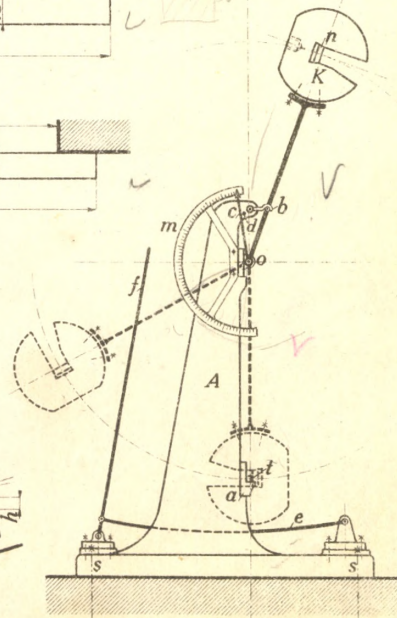
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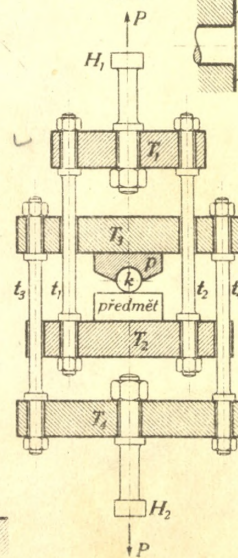
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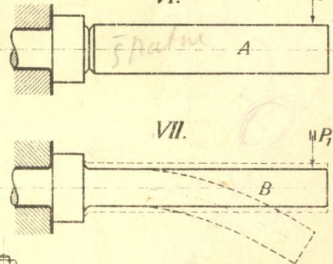
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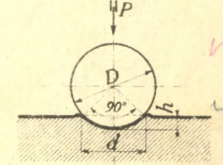
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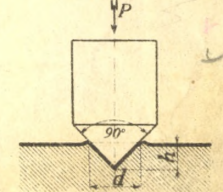
VII.



XIII.

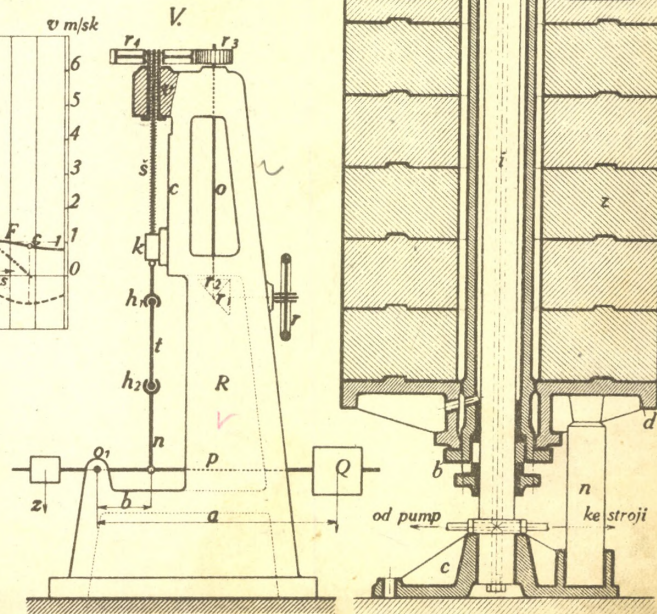
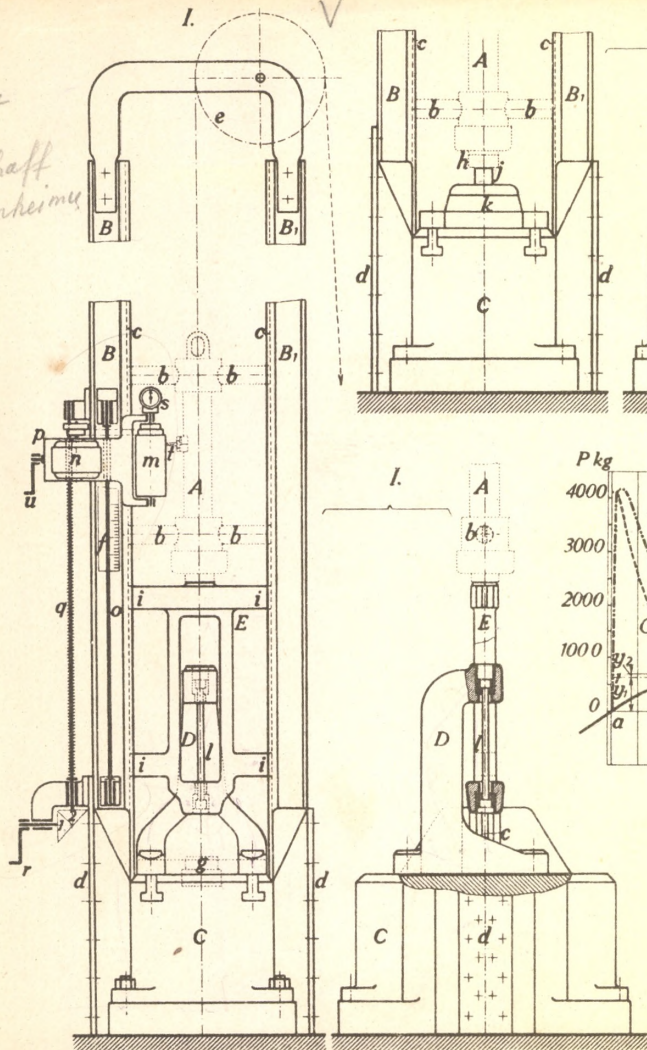


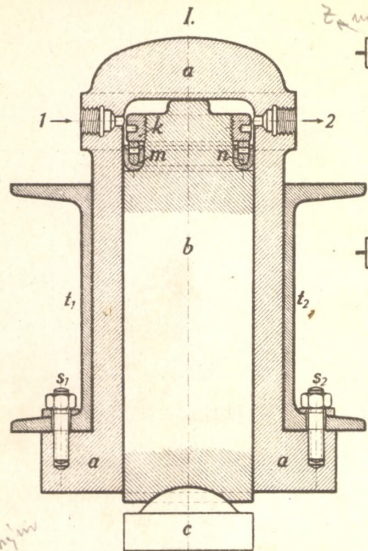
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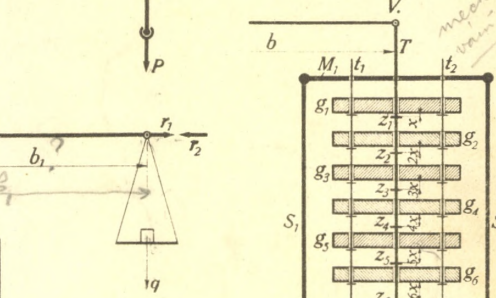
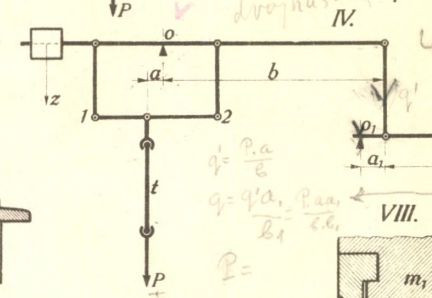
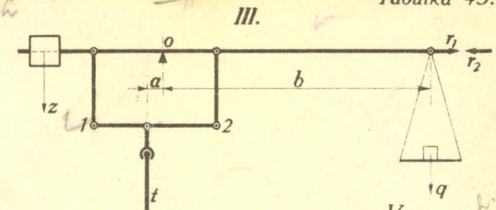
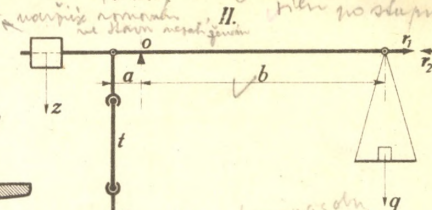
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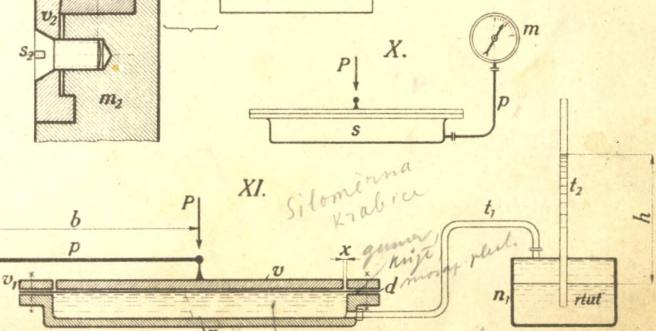
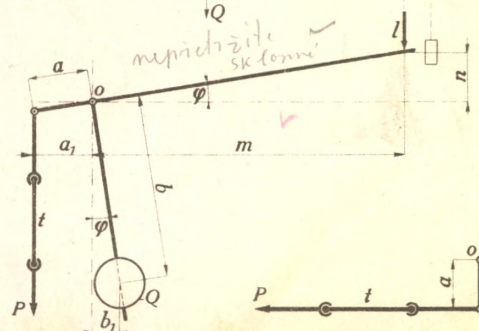
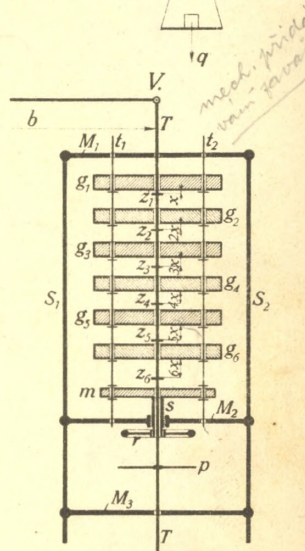
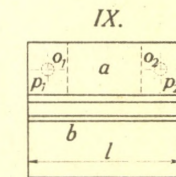
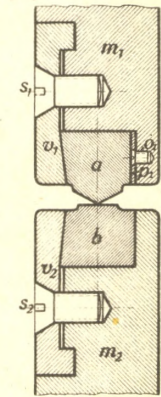
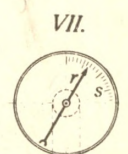
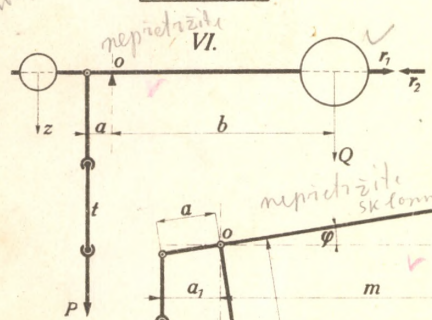




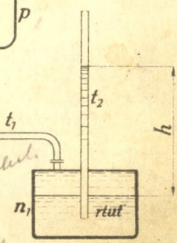
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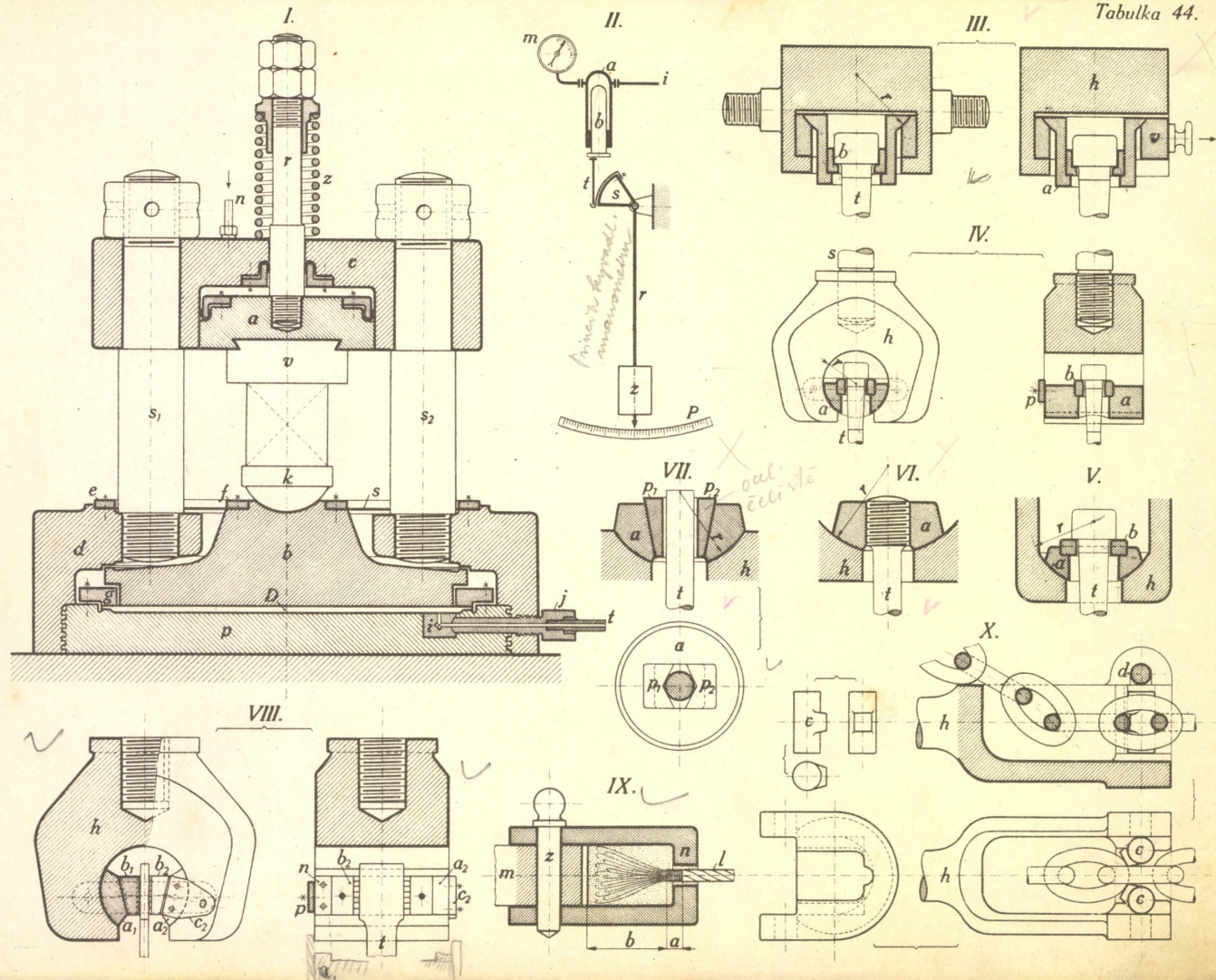


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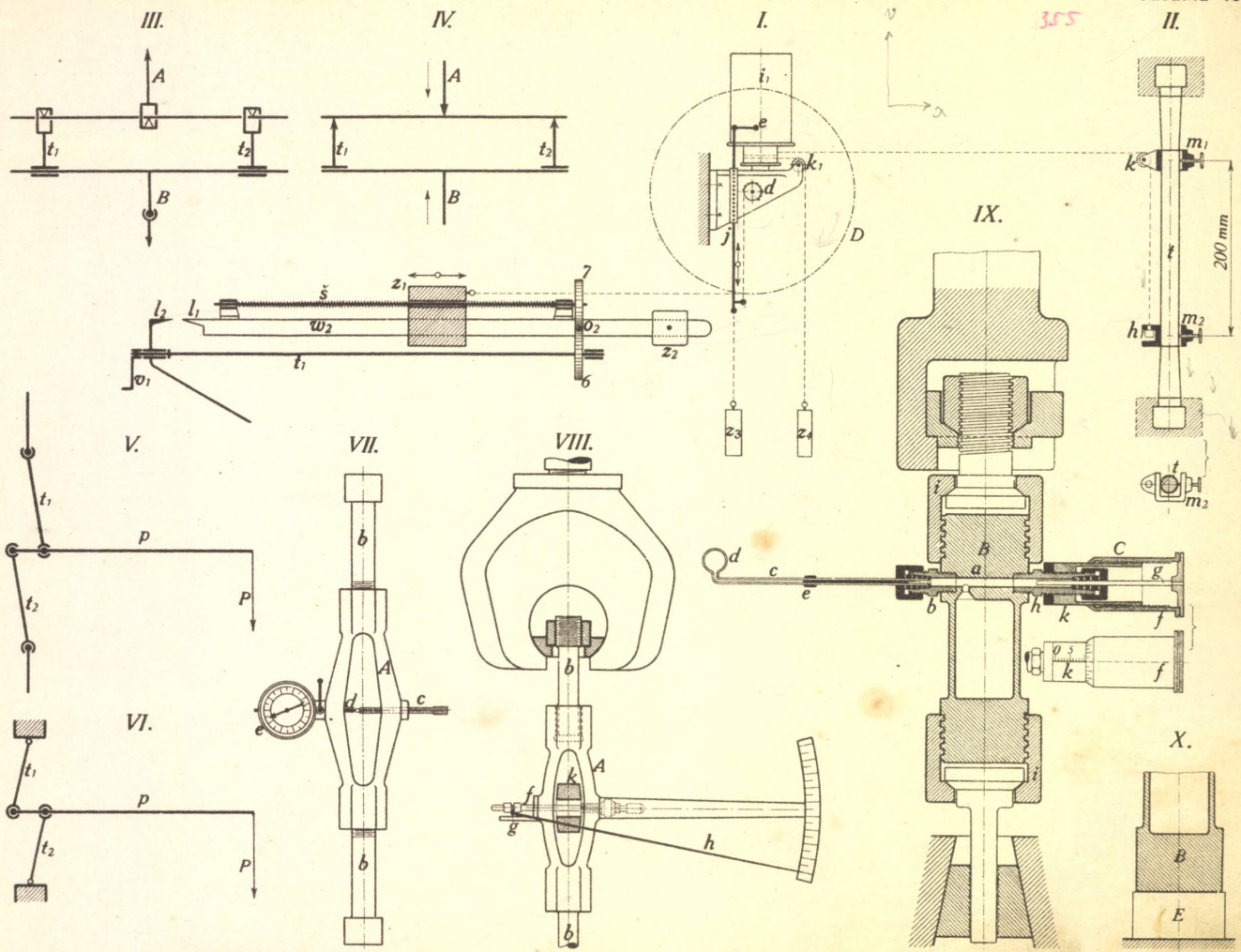


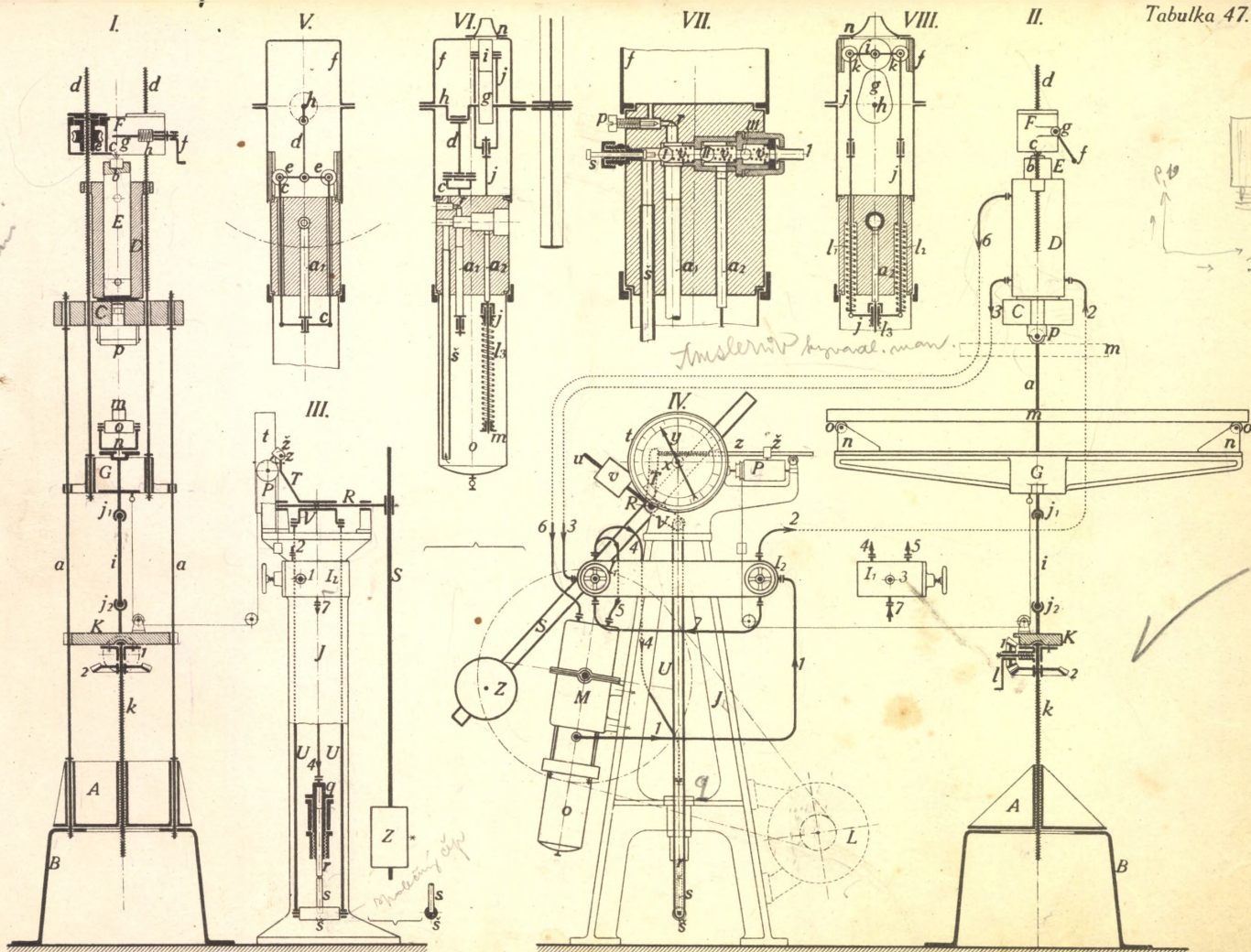
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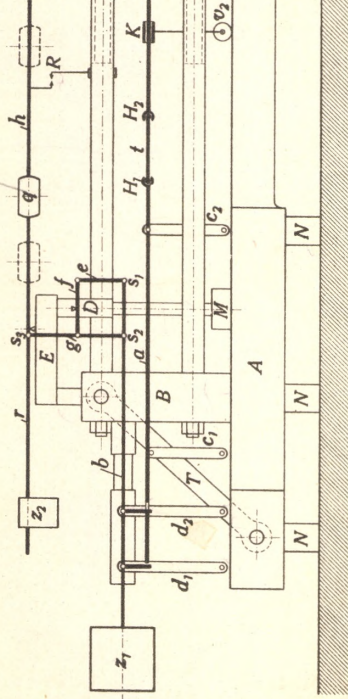




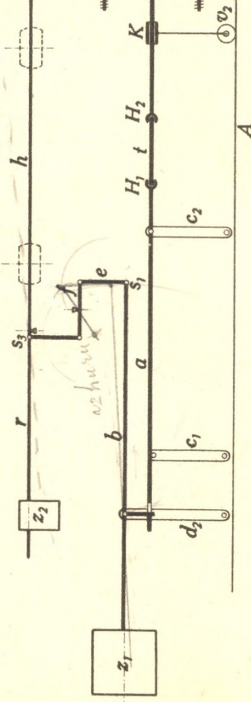
355



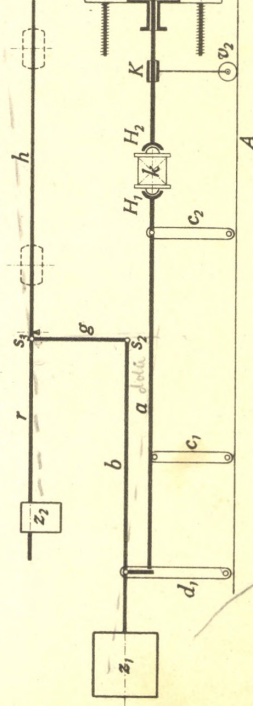




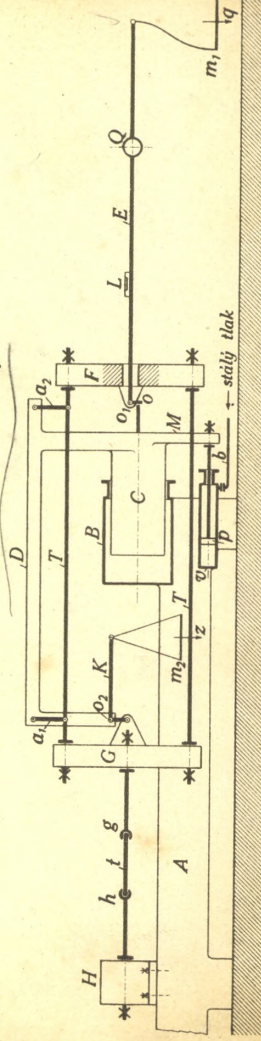
II. Účinné části stroje při zkoušce tahem.



III. Účinné části stroje při zkoušce tlakem.



IV. Schema Werderova stroje.



33/4-4210

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I-132

DIAGRAMY

K PRVÉ A DRUHÉ ČÁSTI

MECHANICKÉ TECHNOLOGIE

PROFESORA INŽ. FRANTIŠKA HASY.



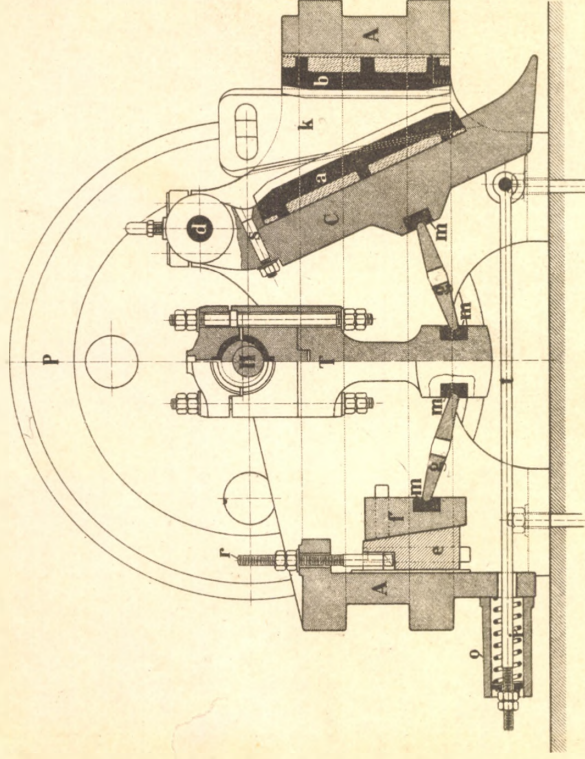
V PRAZE.

NÁKLADEM ČESKÉ MATICE TECHNICKÉ S PODPOROU MINISTERSTVA ŠKOLSTVÍ A NÁRODNÍ OSVĚTY.
V KOMISI KNIHKUPECTVÍ FRANT. ŘIVNÁČE V PRAZE,

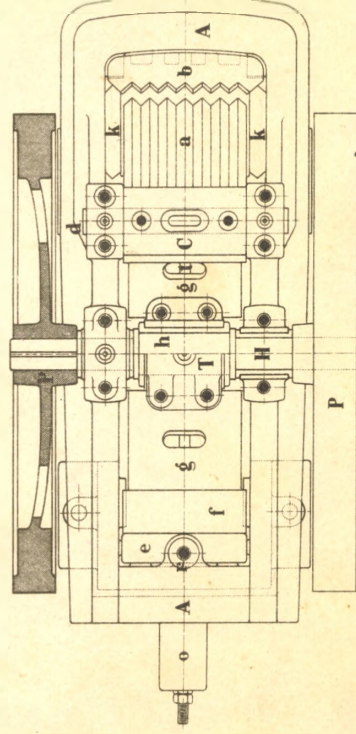
Drtiči stroj soustavy Blake-ovy.

č. 1.

I.



II.



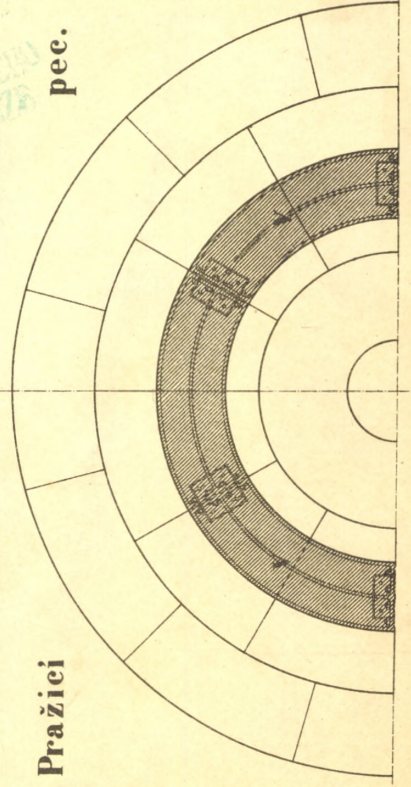
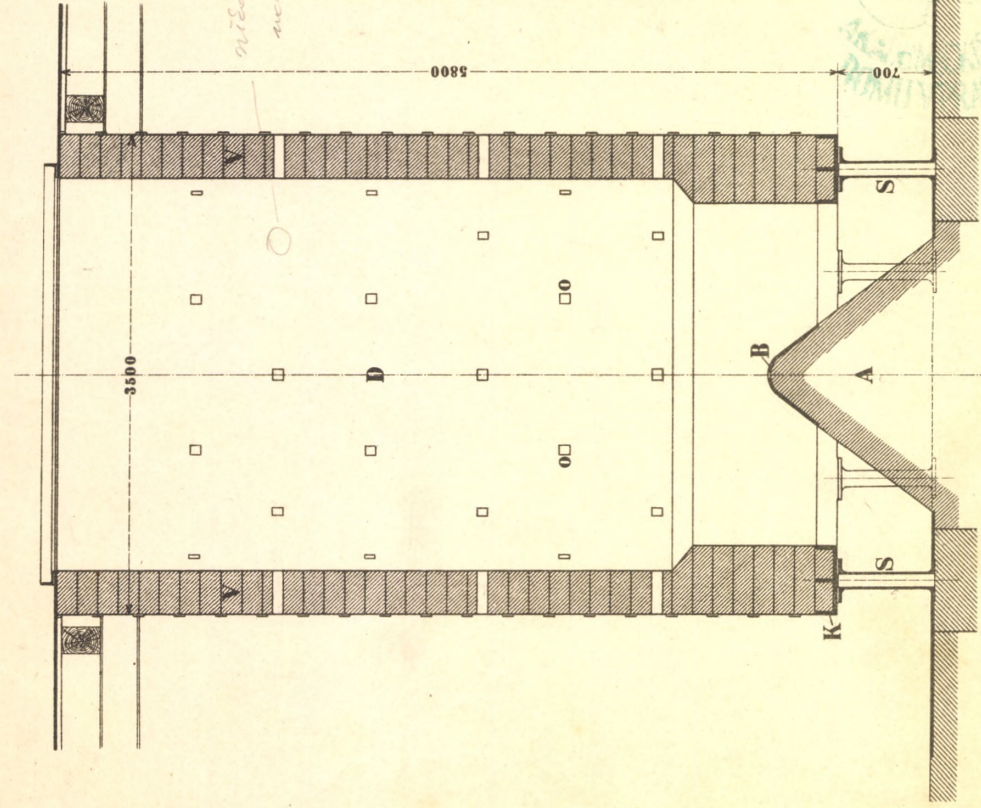
III.



staciokh

Č.2.

stědo paprsmil
ne tlak dirku

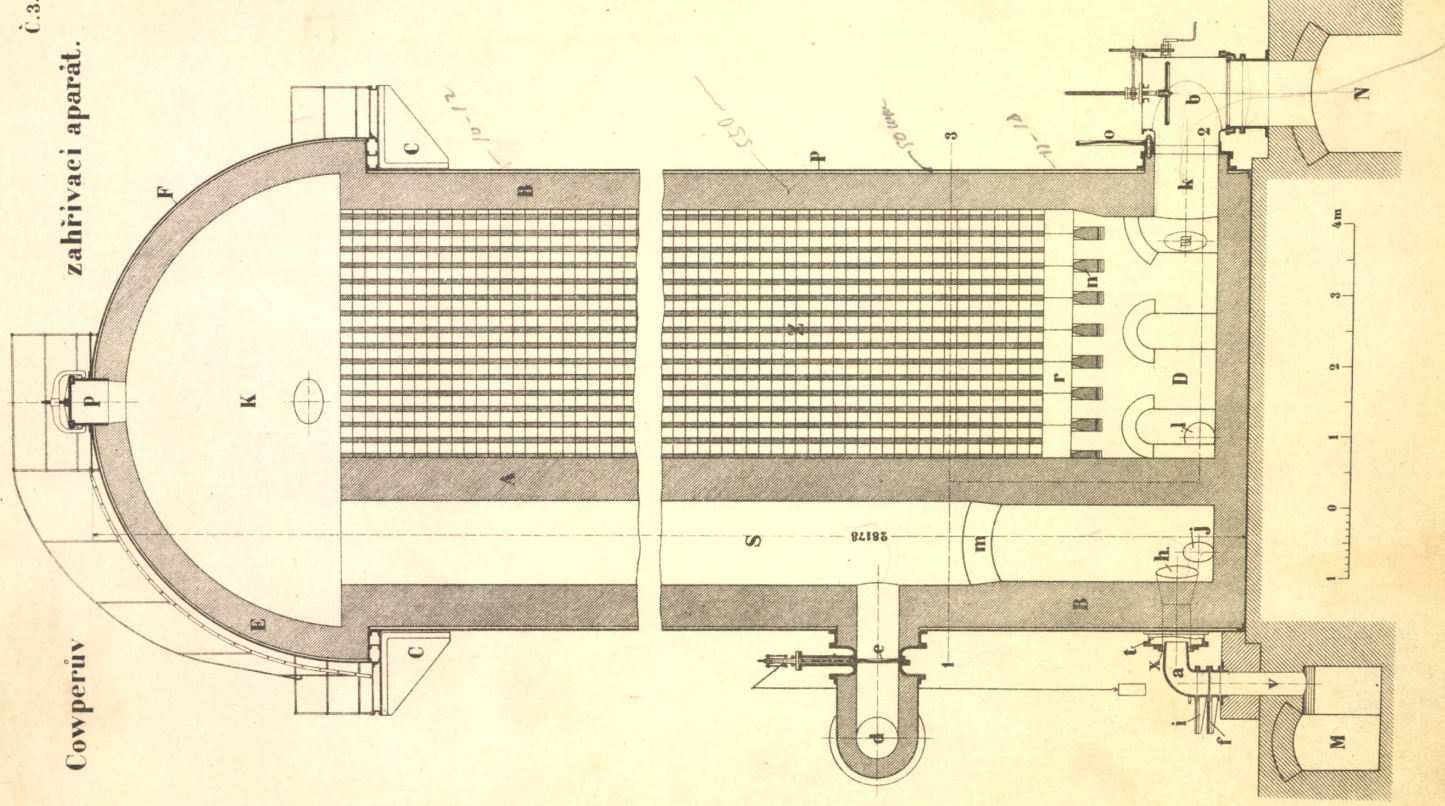


KNIPOLNA
A
KNIPOLNA

Cowperův

zahřívací aparát.

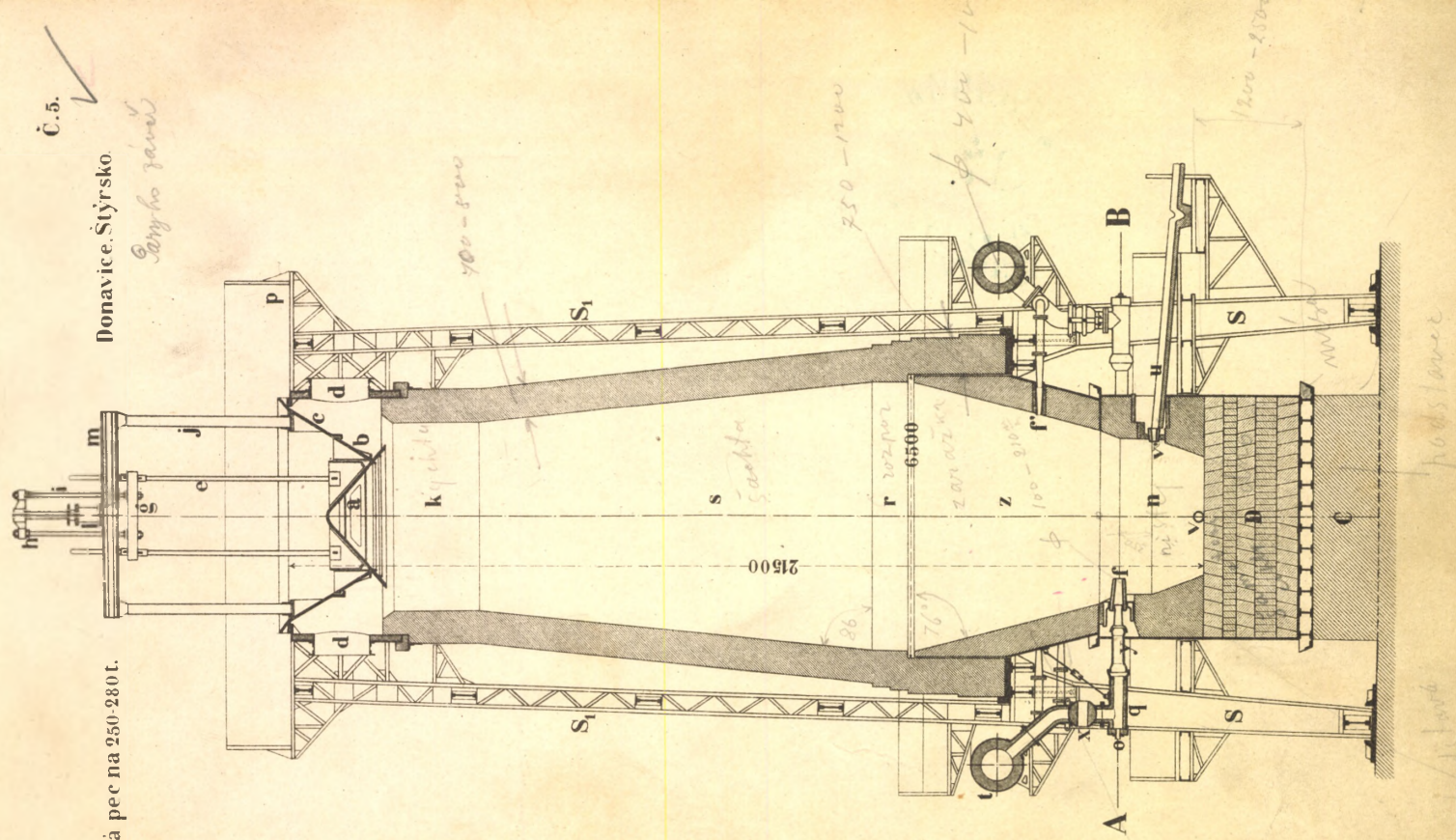
Č. 3.

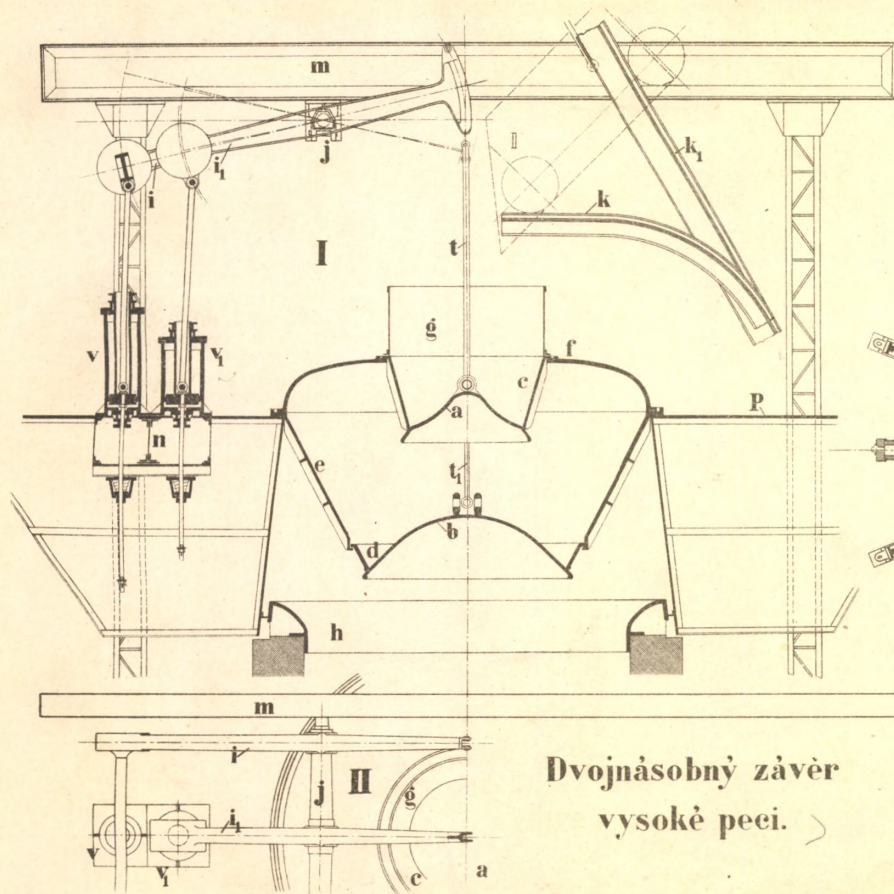


2

Donavice, Stýrsko.

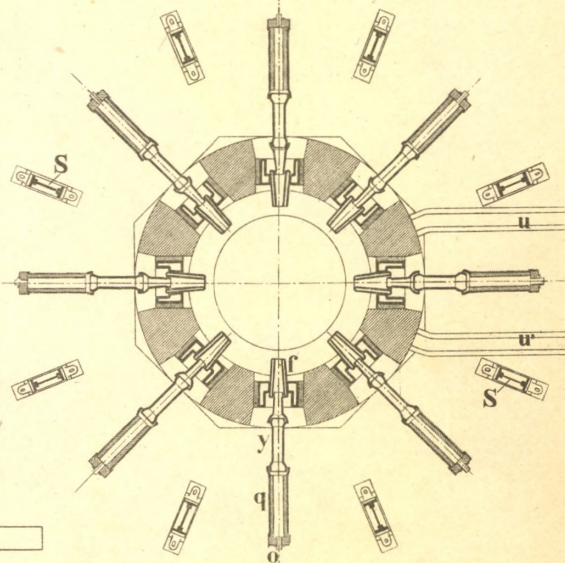
Garyho zavav





Dvojnásobný záver
vysoké peci. >

III
Řez A-B



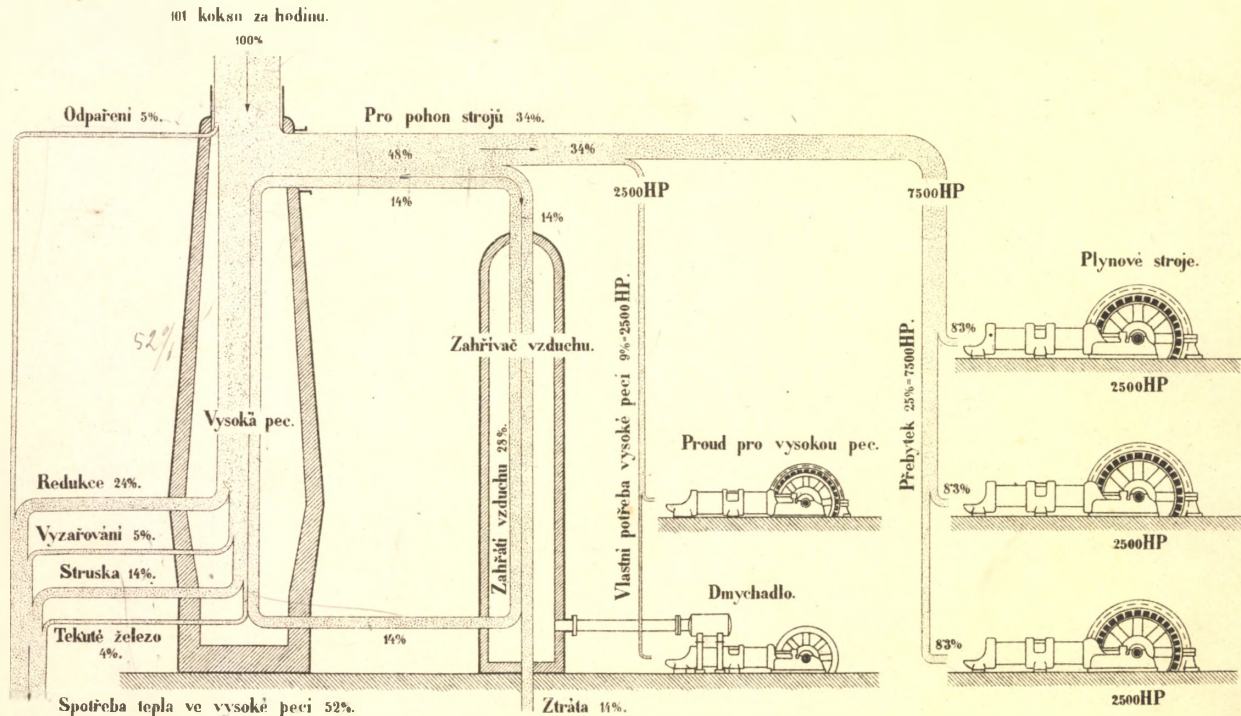
peči, nakreslenou na diag.

Č.5.

Č.6.

Bilance tepla vysoké peci o výkonnosti 250t denně.

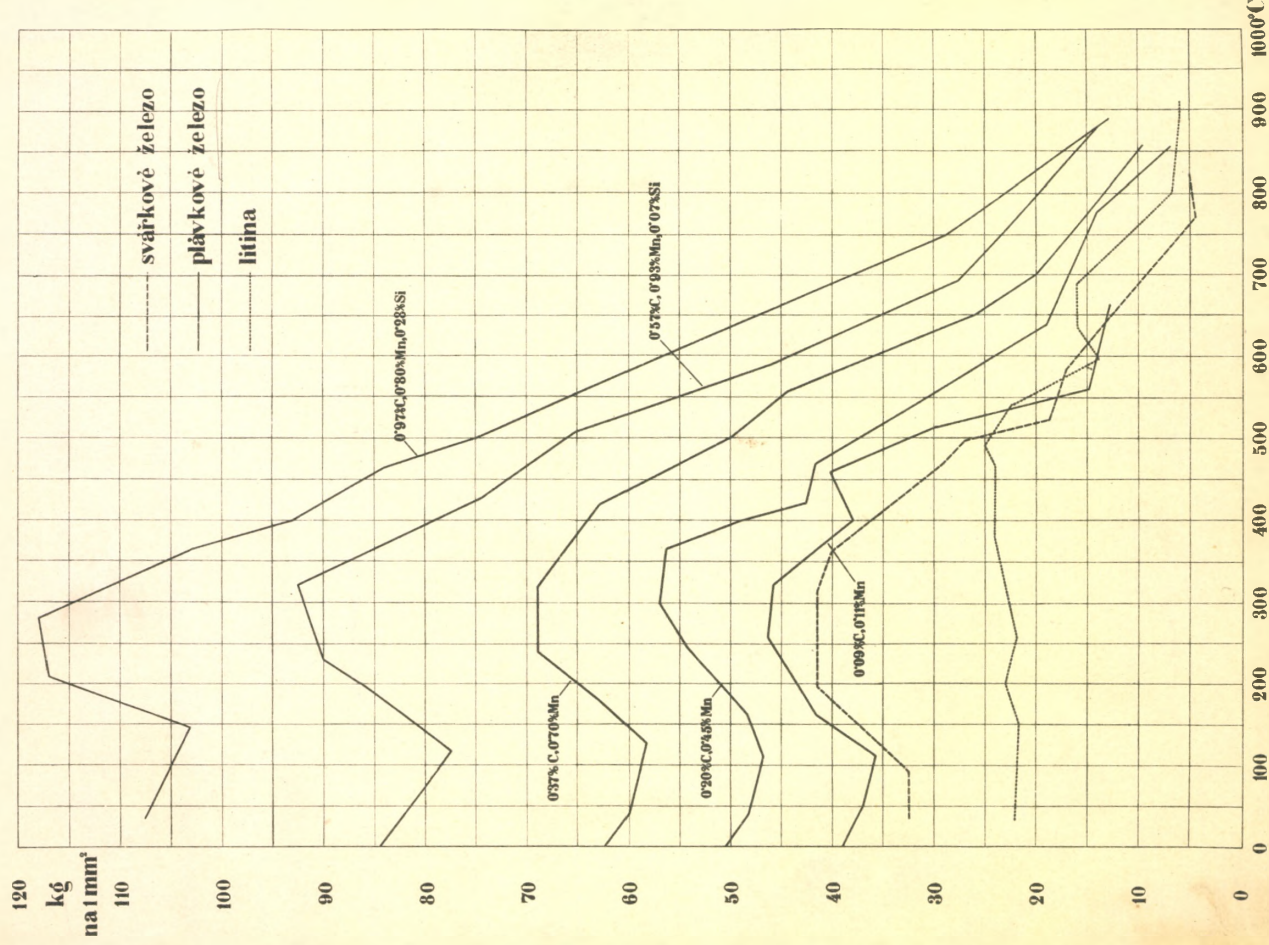
Č.7.



$$\frac{100 - 68}{100} = \frac{36}{100} = 0,36$$

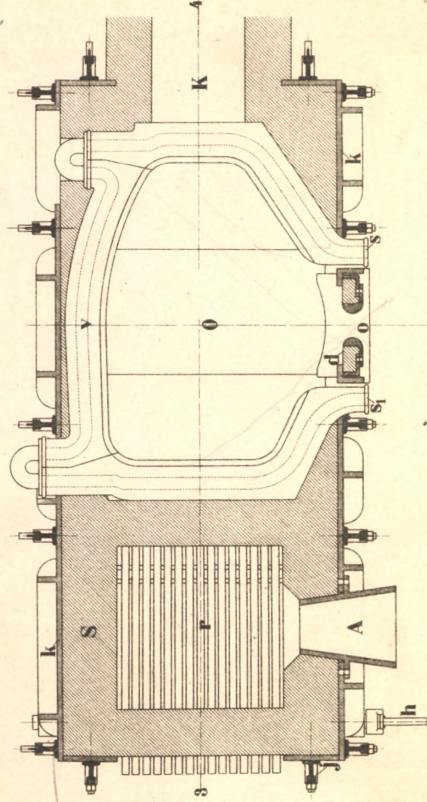
Vliv teploty na pevnost železa v tahu.

Č. 8.

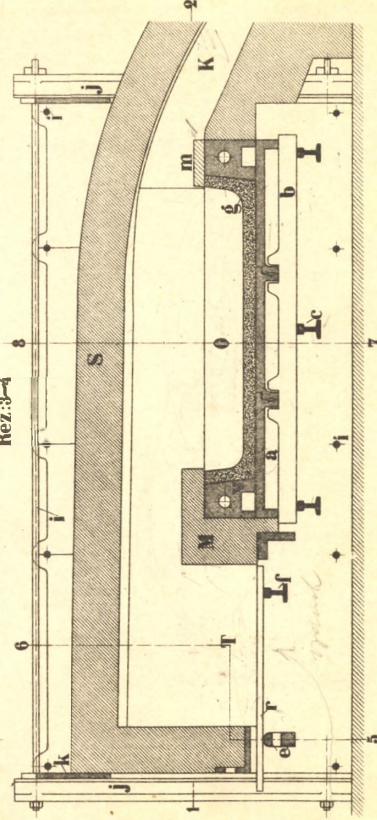


Пудловаци пее.

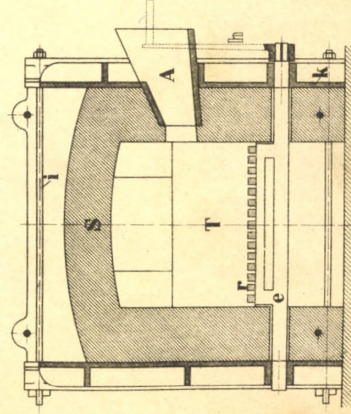
Řez: 1-2



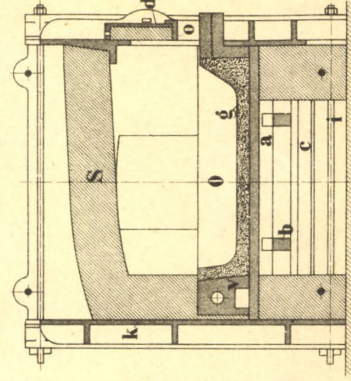
Řez: 3-4



Řez: 5-6



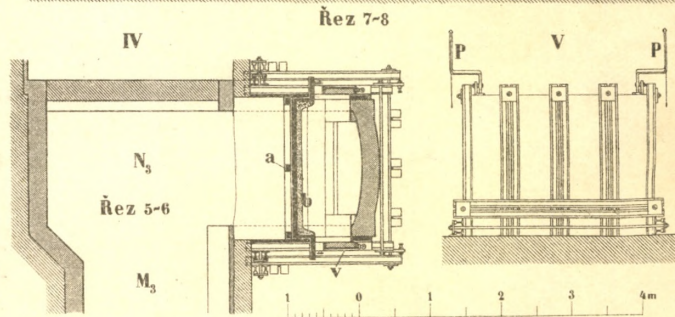
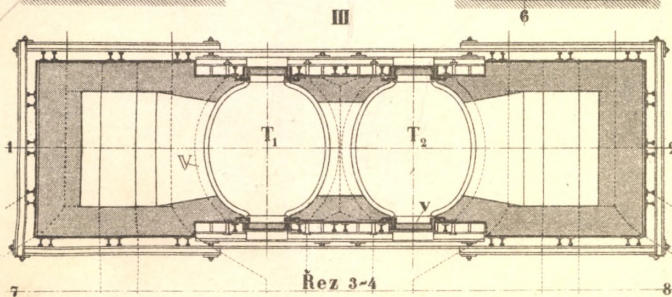
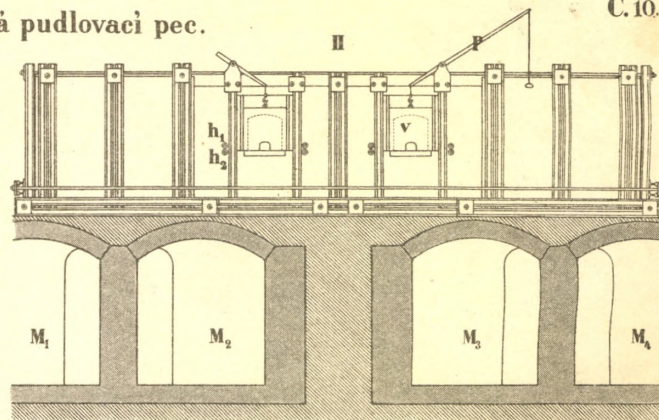
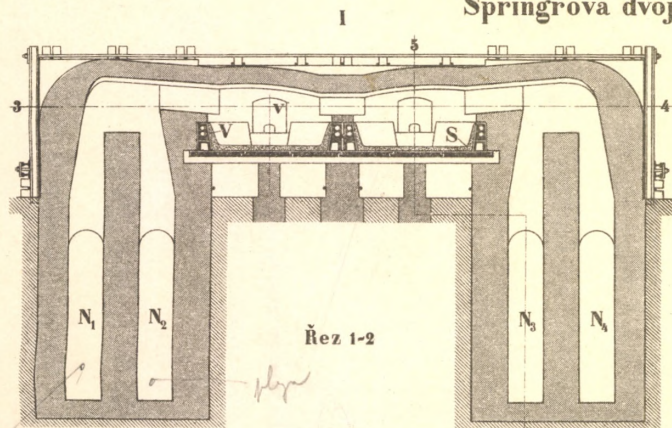
Řez: 7-8



0 100mm 1m

Springrova dvojitá pudlovací pec.

Č. 10.

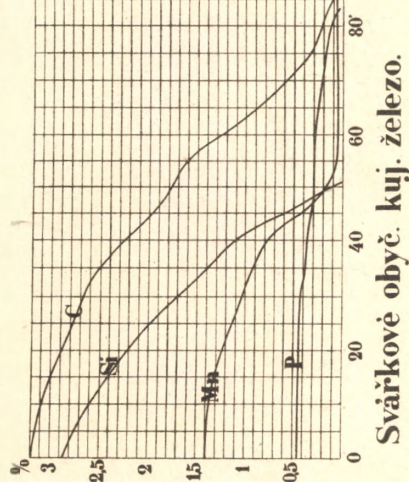


*h₁ -
v₁ -
v₂ -*

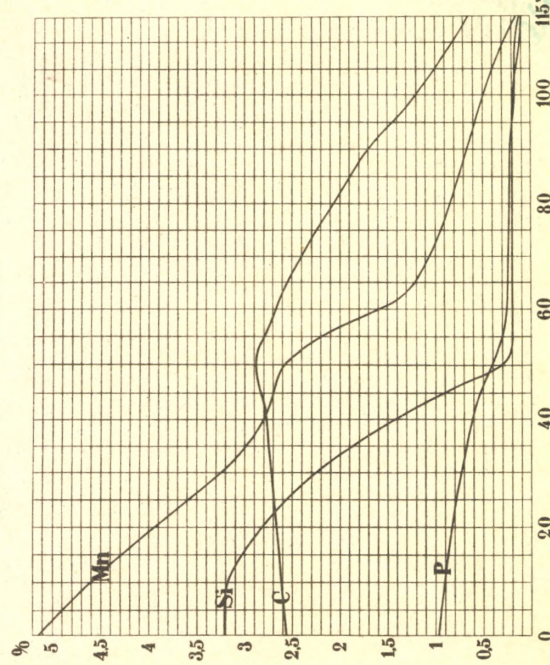
Č.11.

Pudlovací

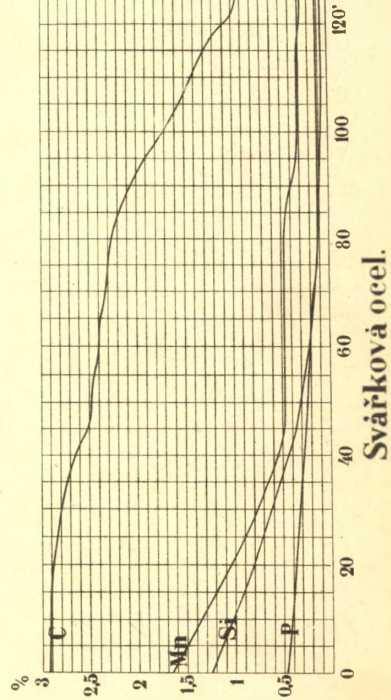
pochod.



Svářkové obvyč. kuj. železo.



Svářkové jemnozrnné železo.

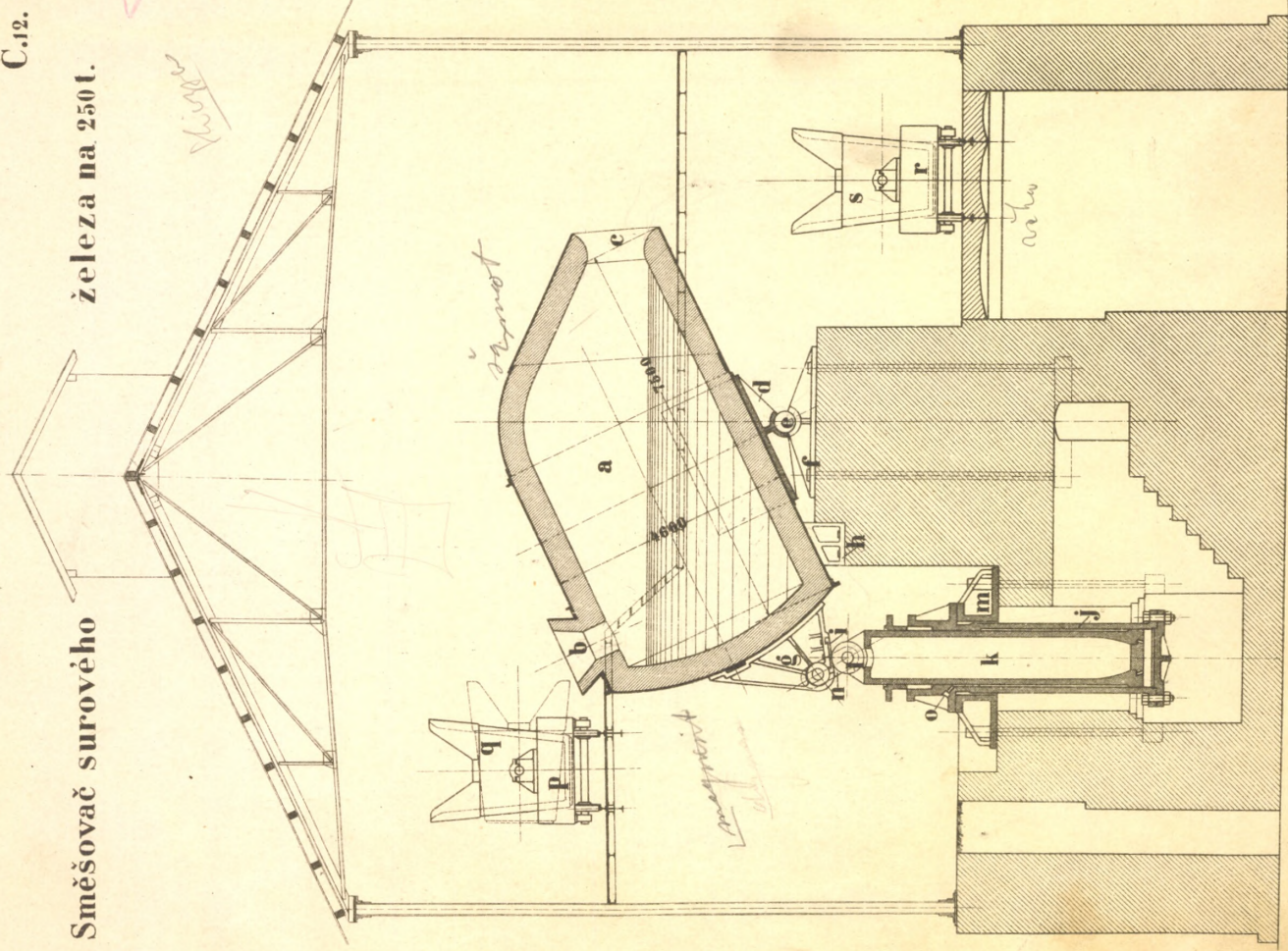


Svářková ocel.

Č.12.

Směšovač surového

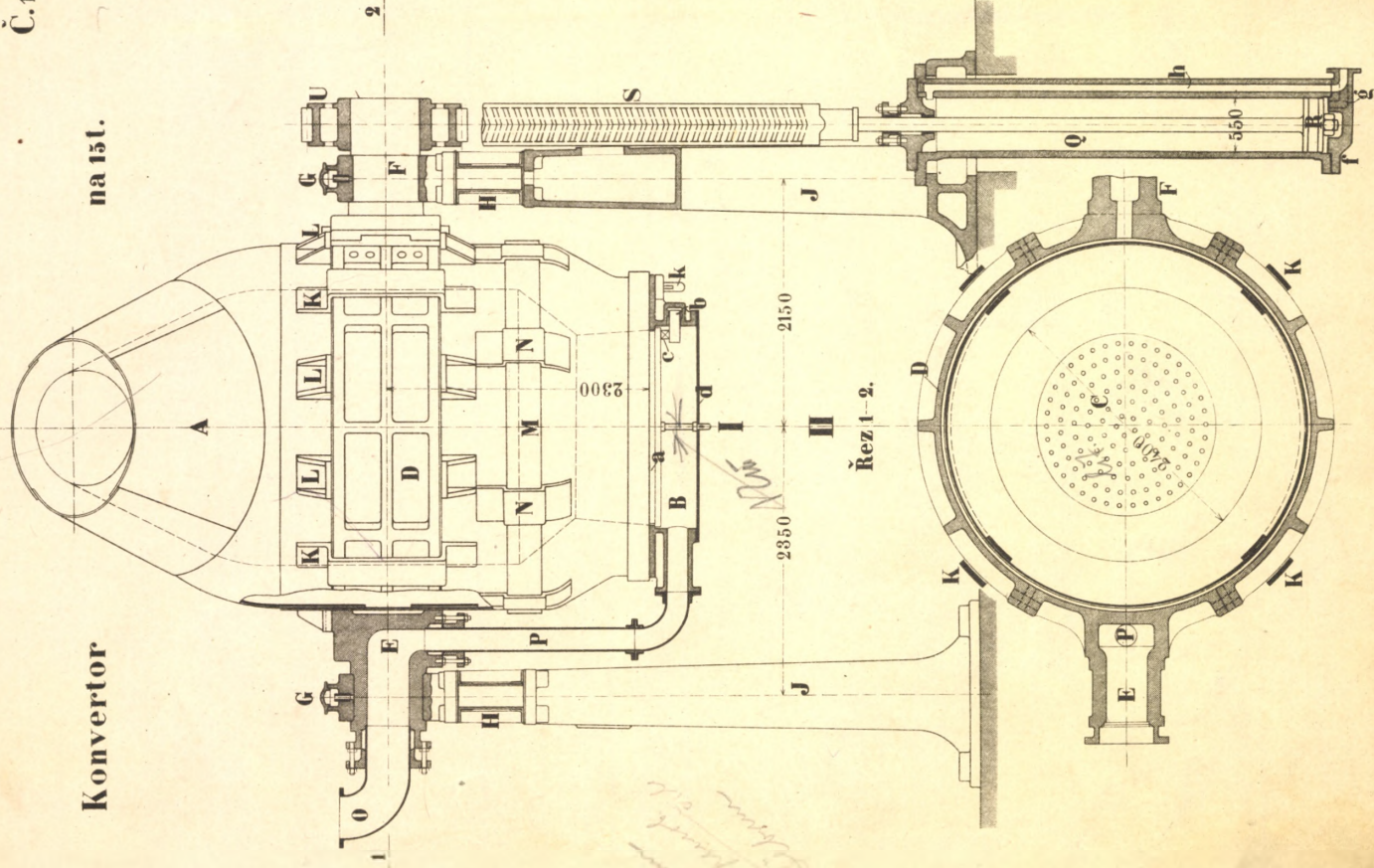
železa na 250t.



Konvertor

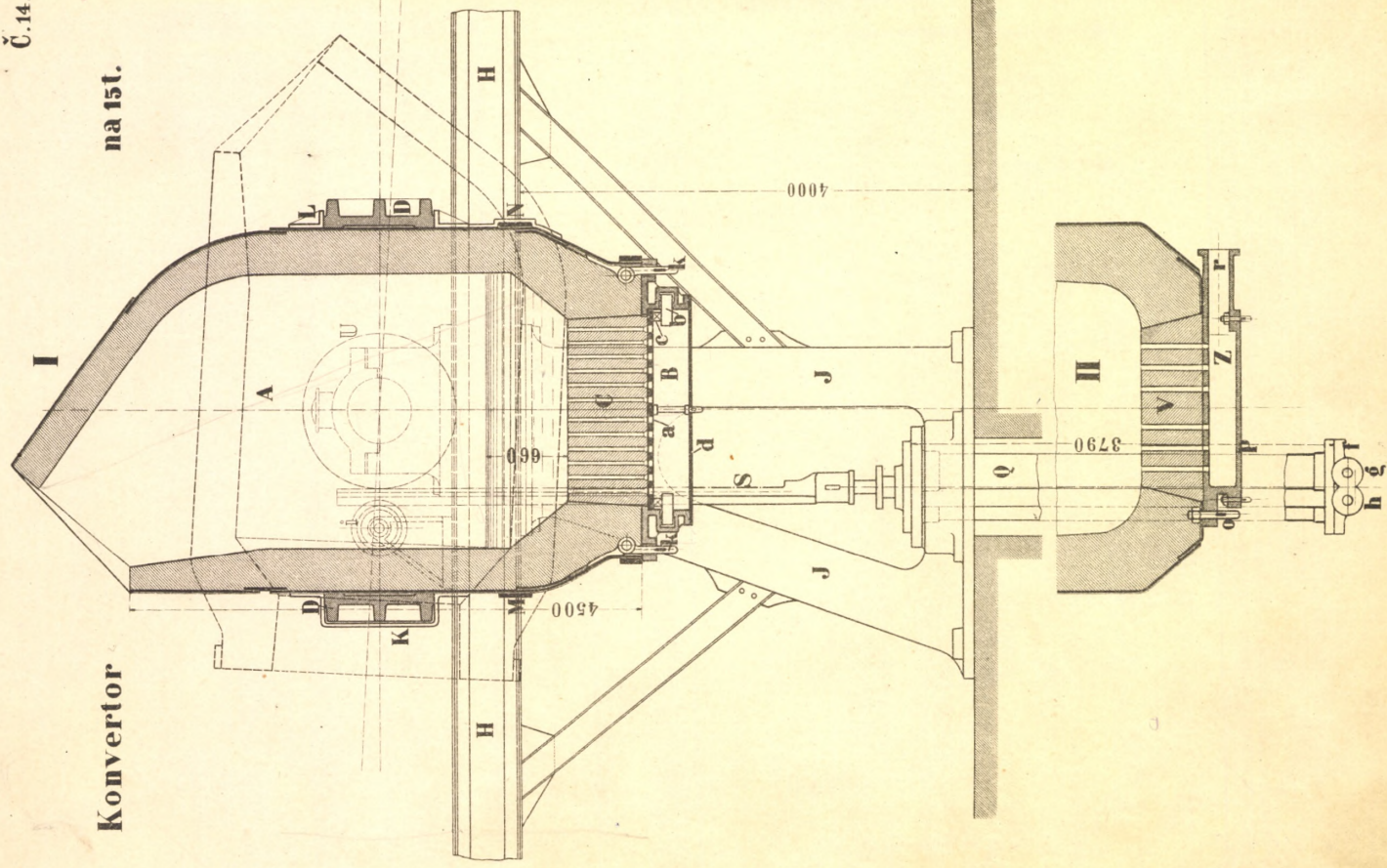
na 15 l.

Č. 13.

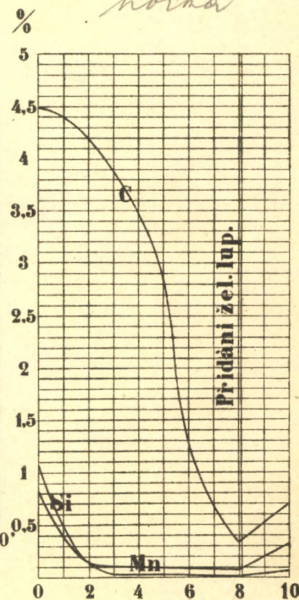
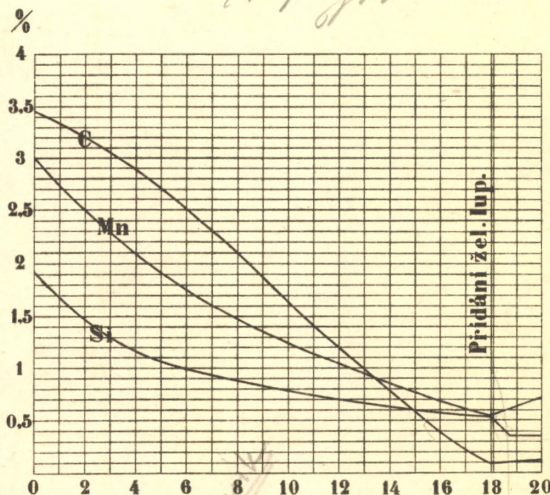
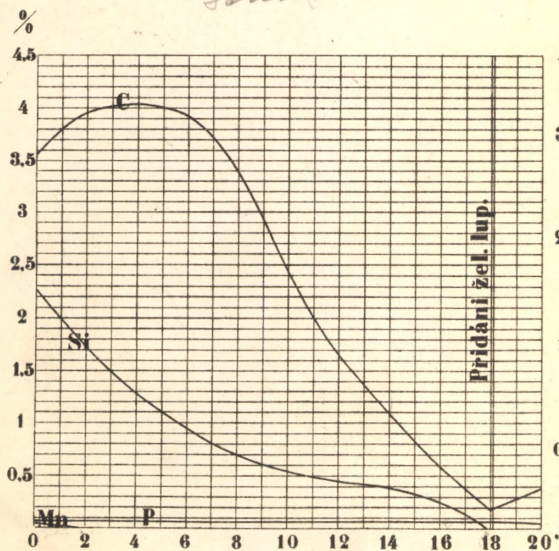


Konvertor

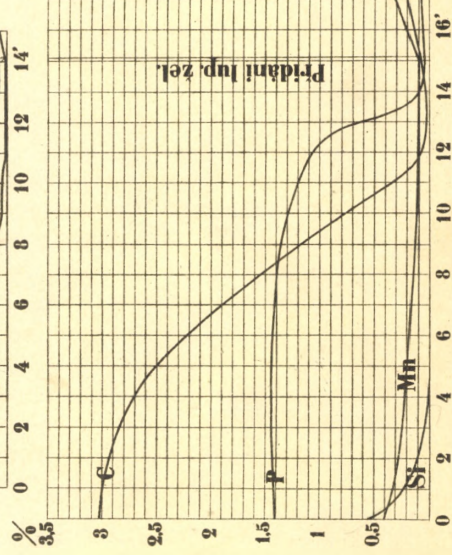
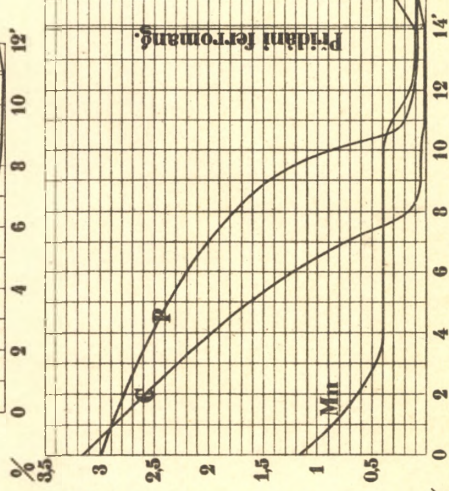
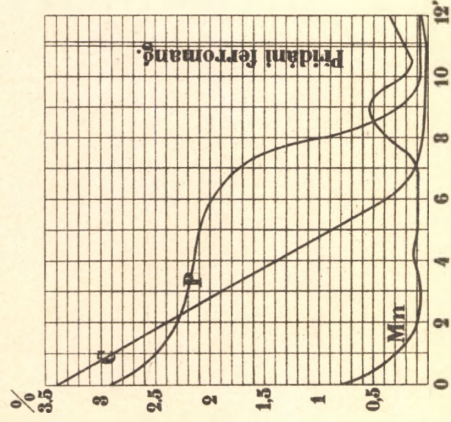
na 15t.



✓
POCHOD BESSEMERŮV.

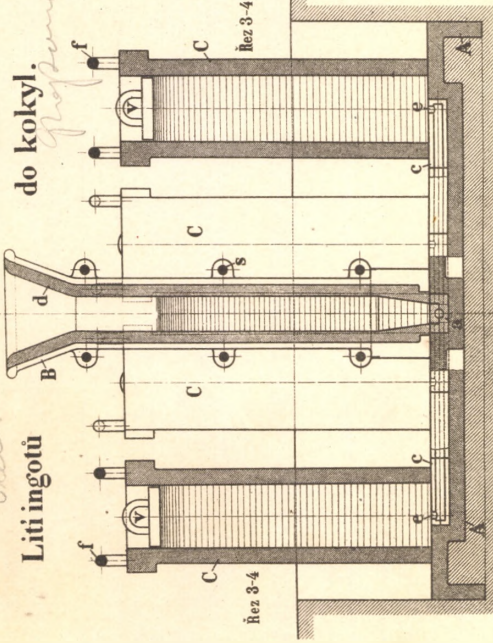


POCHOD THOMASŮV.

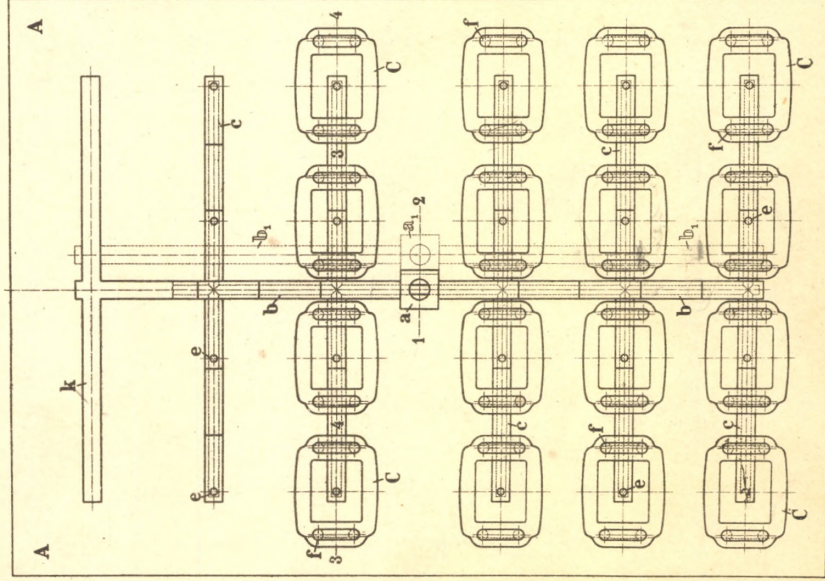


skrzň
Liti ingotů

Řez 1-2

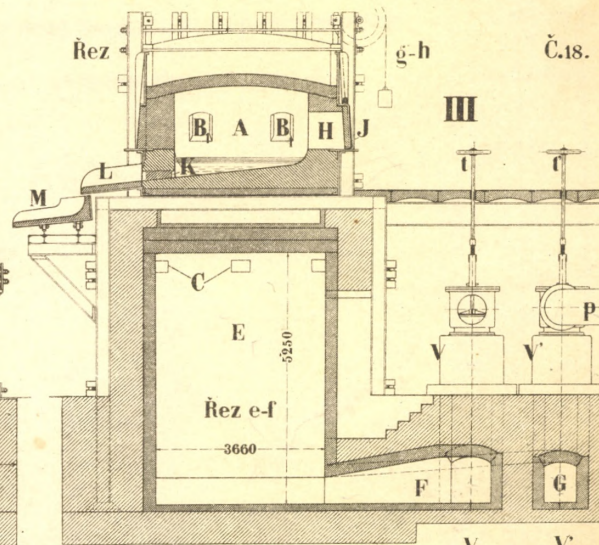
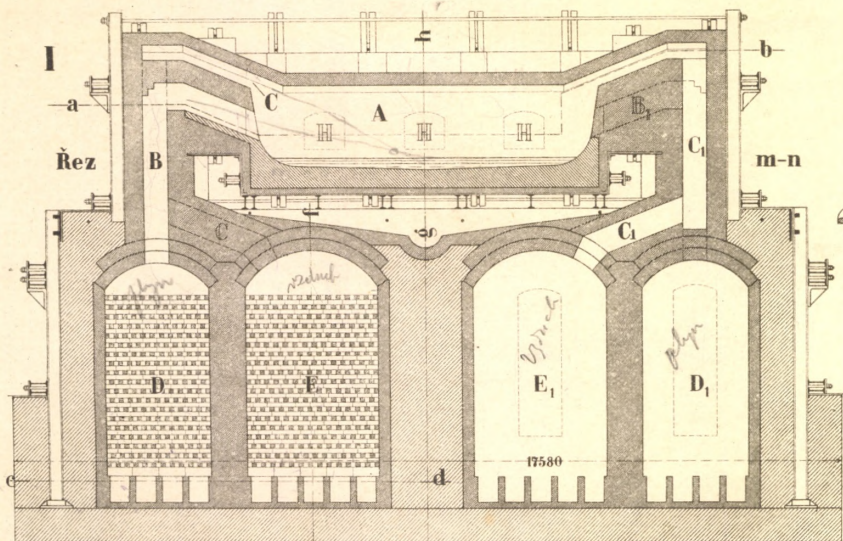


Č. 12

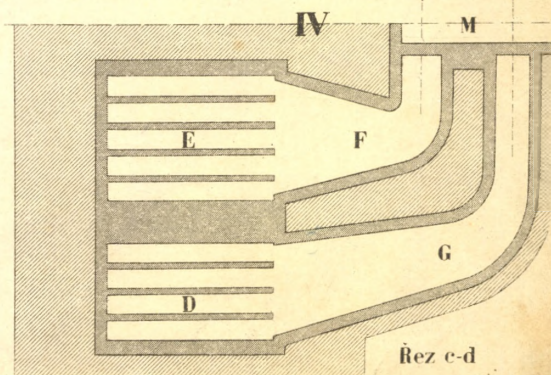
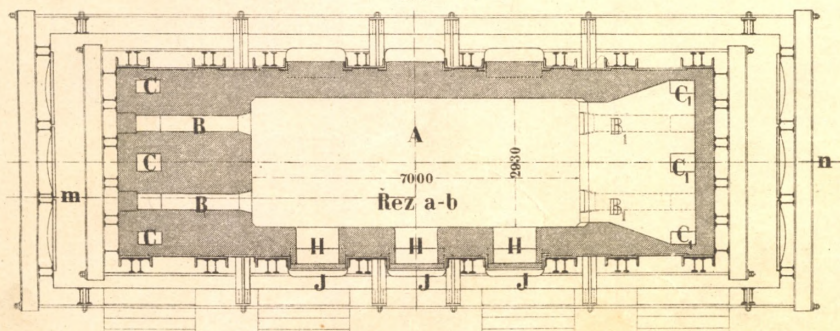


KNIHOVNA KOMITÉTU
pro knižni a jiné ruky
zakládá v Č. 1. 2.

20-190 ran



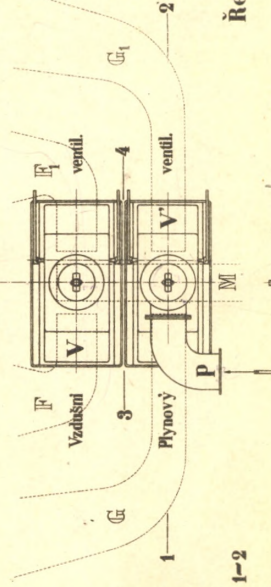
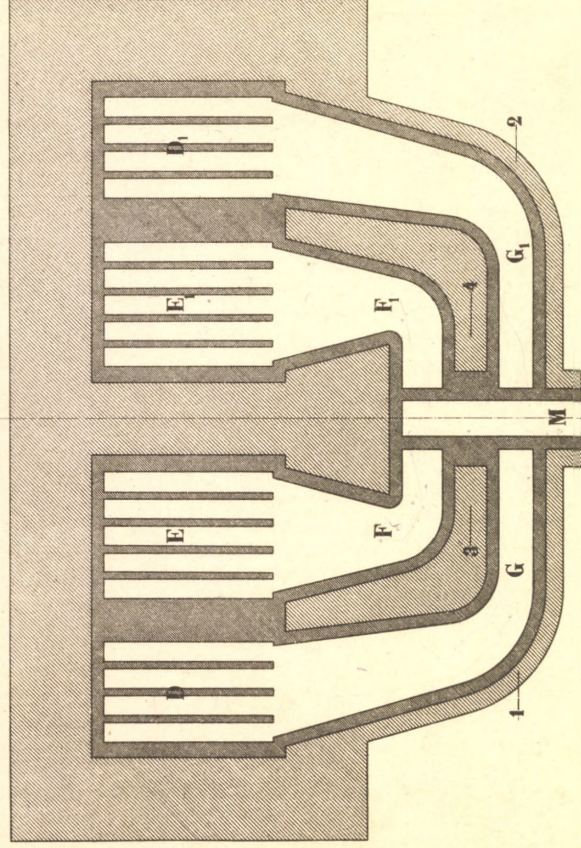
Pec Siemens - Martinova.
25 t.



Pec Siemens-Martinova.

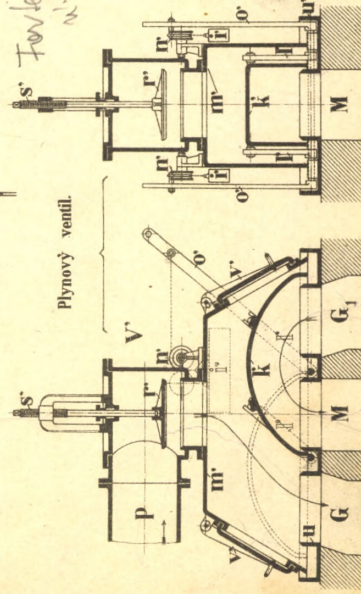
Č. 19.

Řez c-d



Řez 1-2

Řez 3-4

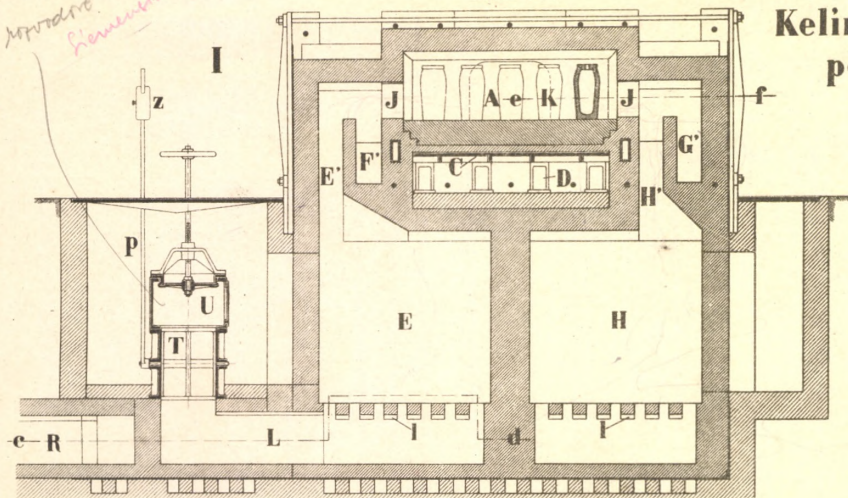


*Forsterov-
ní*

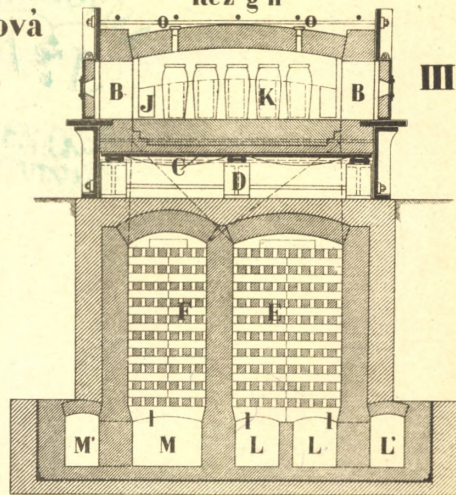
*Průvodce! kotel na spalování
Siemensova Hořákovy*

Řez a-b

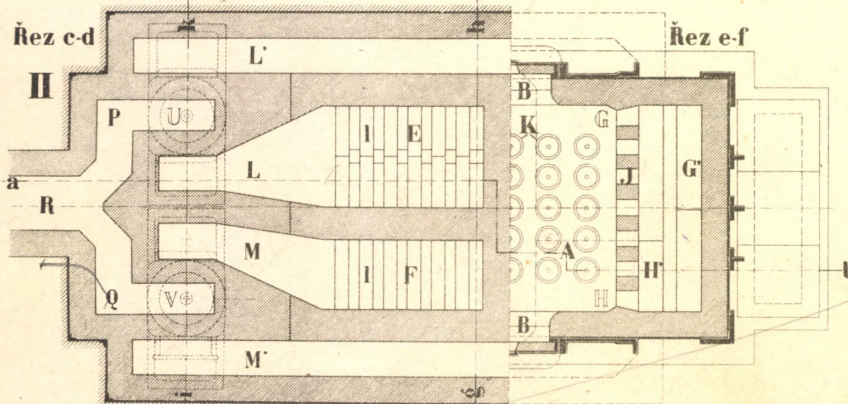
tlak
Kelimková
pec.



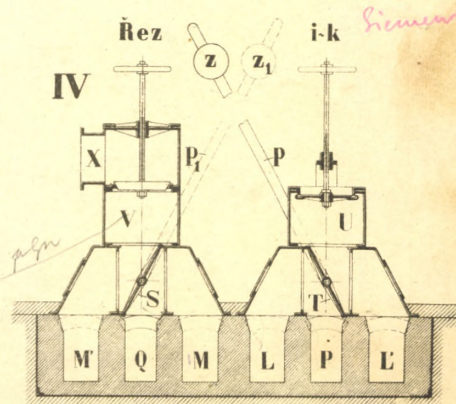
Řez g-h



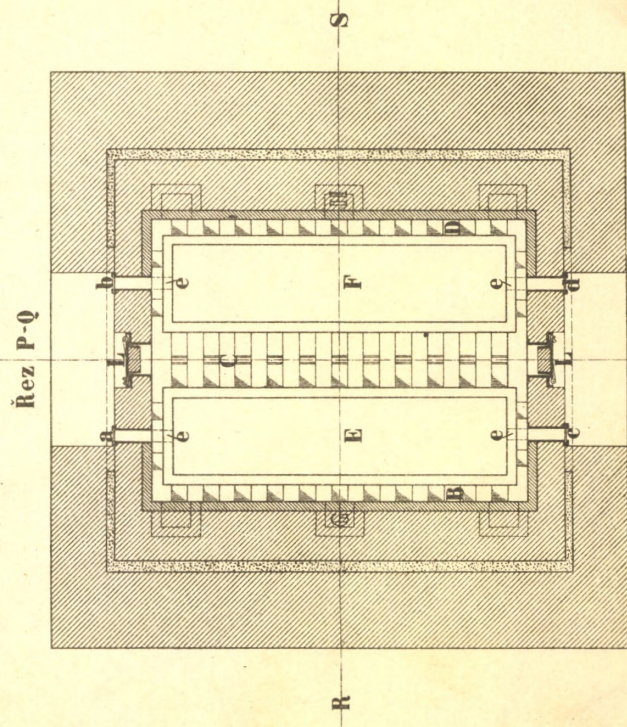
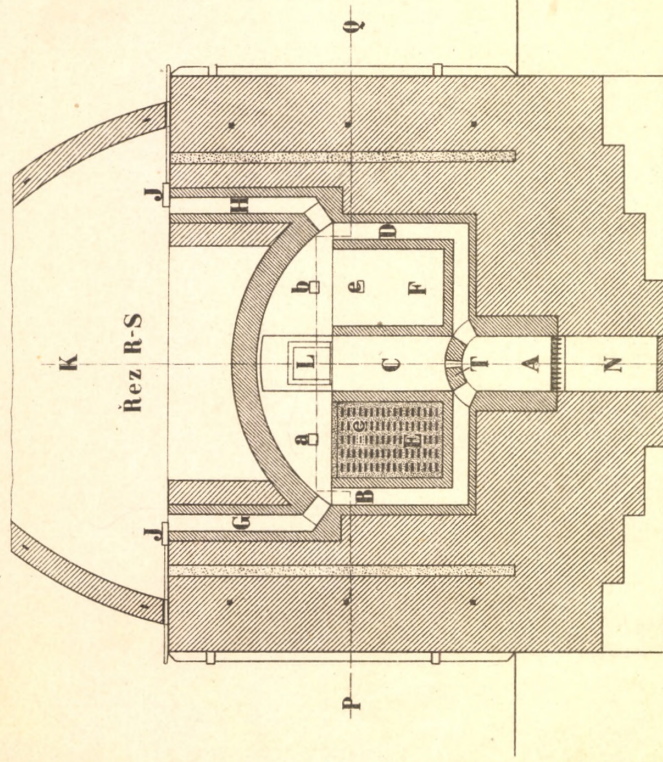
Řez c-d



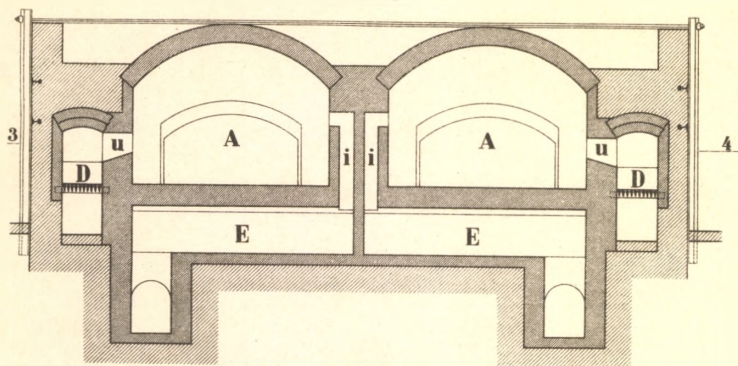
Řez e-f



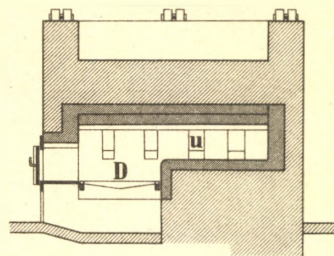
Siemens



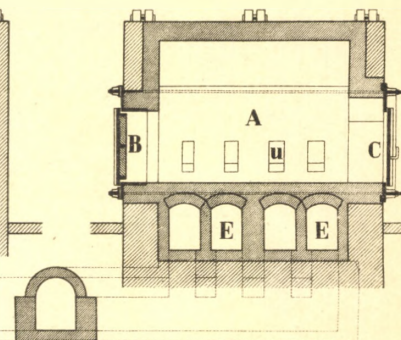
Řez 1-2



Řez 5-6



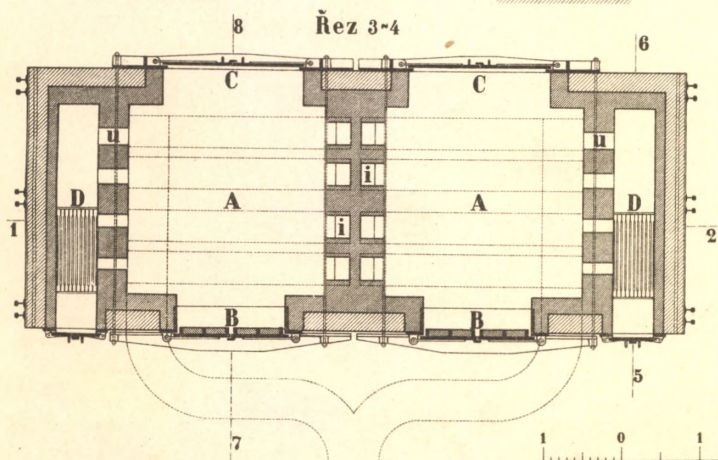
Řez 7-8



Chladicí pec.

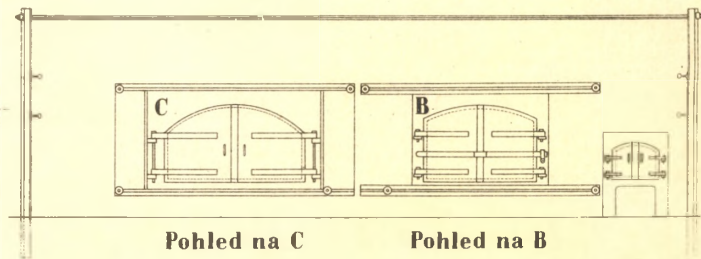
Gelsenkirchen.

Řez 3-4



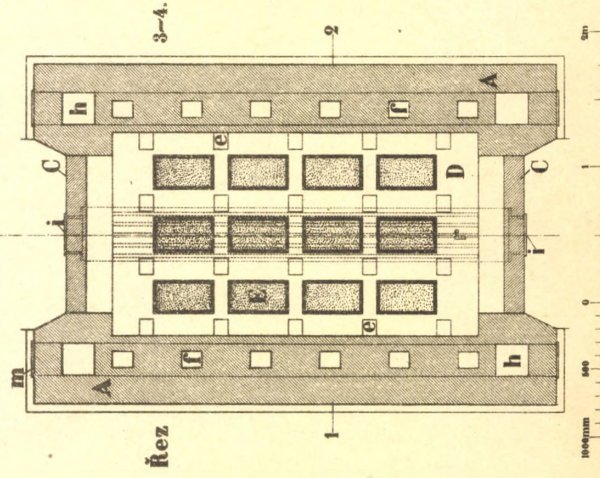
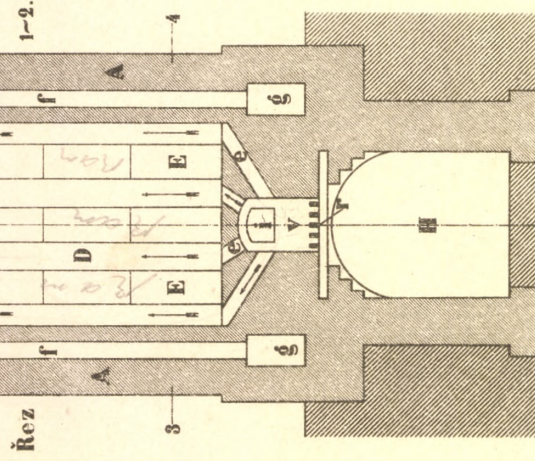
Pohled na C

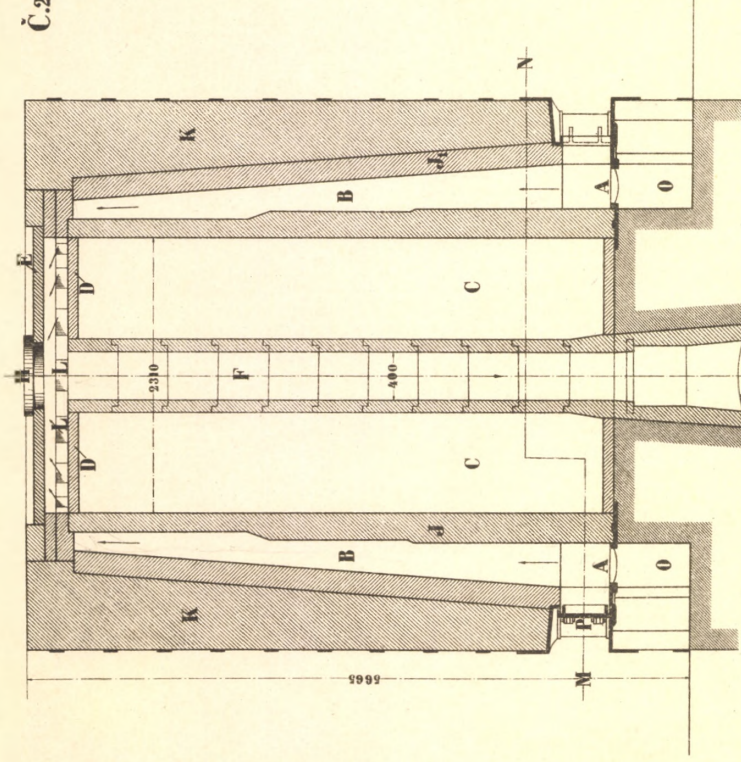
Pohled na B



Temperovací pec na drobné předměty.

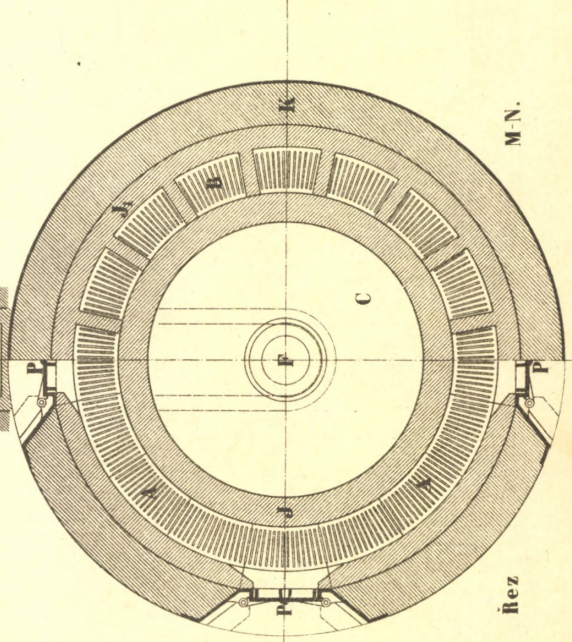
Č.23.





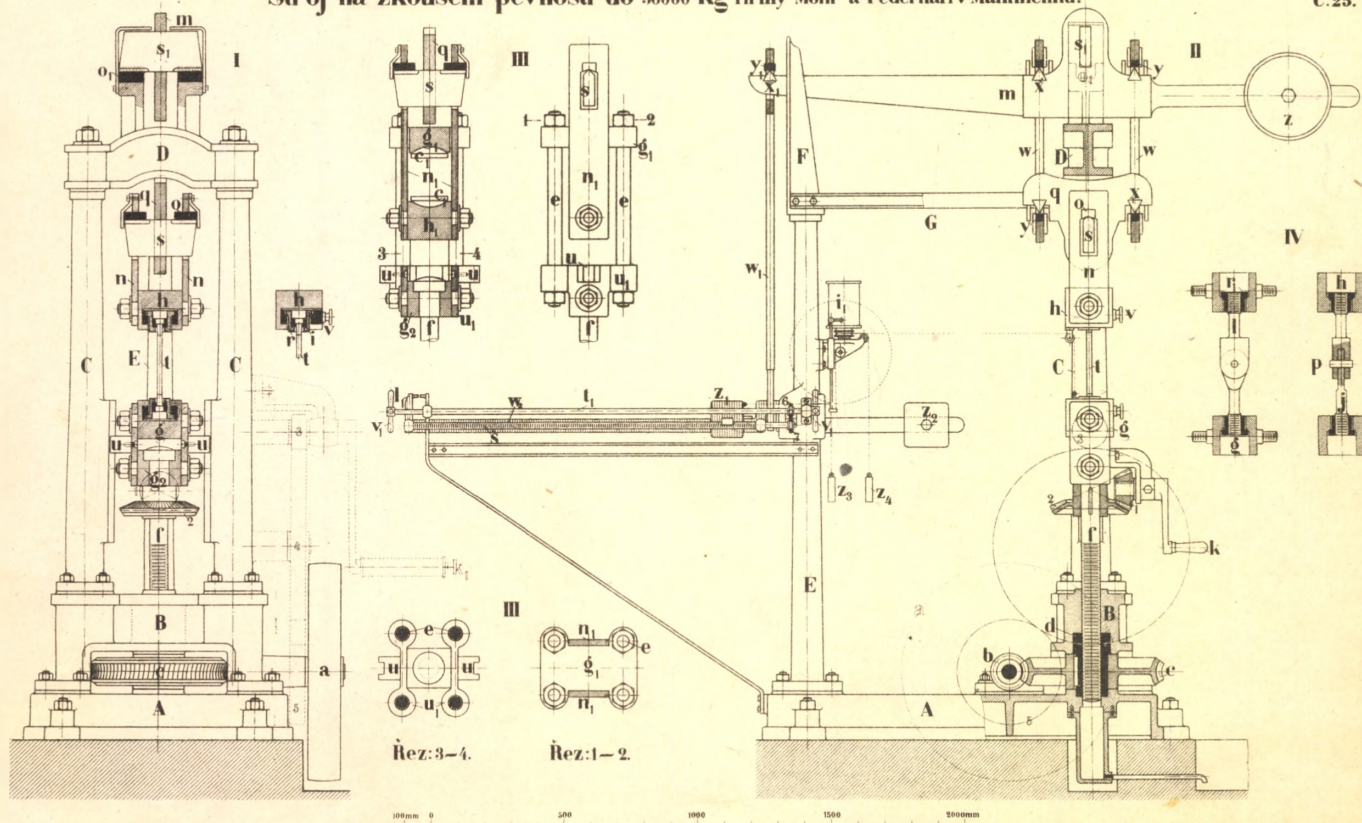
Temperovaci

pec.



Stroj na zkoušení pevnosti do 50000 kg firmy Mohr a Federhaffv Mannheimu.

Č.25.



1. Schema Thomasetova stroje.

